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OF THE
Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

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WHOLE NUMBER 230

GRAND RAPIDS, MICH., OCTOBER, 1921

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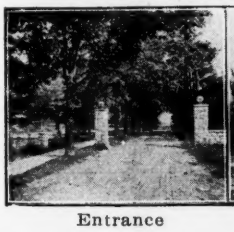
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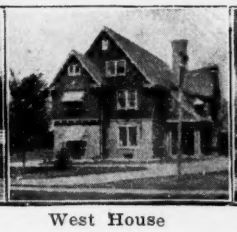
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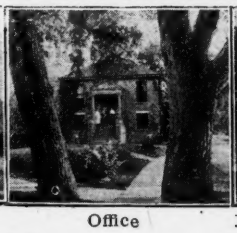
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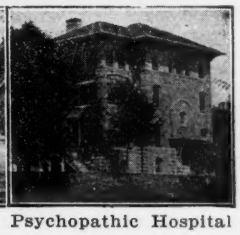
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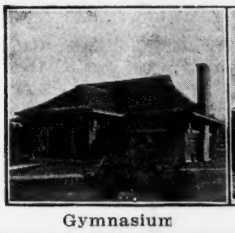
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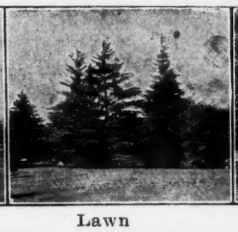
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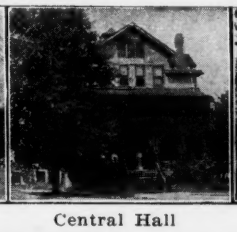
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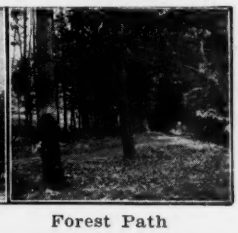
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Vol. XX GRAND RAPIDS, MICHIGAN, OCTOBER, 1921 No. 10

Original Articles

CLINICAL ASPECTS OF BLOOD PRESSURE*

JOHN A. MACGREGOR, M. D.
Chief of the Department of Medicine, Western University.
LONDON, ONT.

You have done me the honor of asking me to address you this evening and in accepting I am conscious of the obligation I have placed on myself. I hope that you will in your subsequent valued discussion generously supplement with your personal observations this presentation of my own opinions and conclusions as herein expressed, these being of course, subject to modification or correction as later experience necessitates.

I take it for granted that you will have a greater interest in the more practical consideration of blood pressure and I will therefore deal with it from the almost purely clinical aspect and only to such an extent as is possible in a limited time.

We mean by blood pressure the pressure which the blood exerts against the wall of its containing vessel, be it artery, capillary, vein or endocardium, but it is principally with the arterial pressure that the physician is concerned.

The maintenance of this pressure depends on a number of factors:

First—The force of the left ventricle.

Second—The recoil of the elastic tissue of the arterial wall.

Third—The peripheral resistance in the vessels exerted by the muscular coat under the influence of the vaso dilator and vaso constrictor systems of nerves, these in turn controlled by the vasomotor centre.

Fourth—The blood volume fluctuations which do not exert any marked influence as they are readily compensated for by the elasticity of the vessel and the vasomotor control.

Fifth—The viscosity of the blood possibly exerts an influence as yet undetermined.

The pressure in the artery synchronous with the ventricular systole is called the systolic pressure, that synchronous with the diastole, diastolic pressure, the difference between the two pulse pressure.

The use of the sphygmomanometer is the usual method of arriving at an estimation of this, but it is only an arbitrary method of arriving at it and one must not be misled by figures which have a tendency in any instance to convey an impression of accuracy which is far from fact in this case. One must not forget the value of the trained finger in obtaining information which is not educed by the various mechanical devices brought to our attention in more recent years, some of which are altogether unreliable. I refer principally to the manometer of the aneroid type, many of which when quite new show far more correct readings when checked up by a mercurial instrument and even when correct when new, require frequent subsequent verification.

Just here I want to call attention to the fact that like many new methods introduced into clinical use there has been with each one a marked tendency with most practitioners to place too much dependance on the information so readily obtained by them and, on account of this ease of application to ignore clinical nivestigation to the detriment not alone of the patient but also of the physician whose powers of observation soon become less keen and whose clinical acumen soon wanes.

While I am sure too much stress has been laid on the findings of the sphygmomanometer, I do not want to be understood as absolutely disregarding them for there is no doubt by its judicial use much information can be gained and evidence of changes in the cardio-vascular-renal system obtained probably at a much earlier period of their evolution than by other means, or at least

*Read before the Jackson County Medical Society, Jackson, Mich., April, 1921.

one's attention may be directed to a more careful investigation of these organs for signs of their functional impairment. We should be very careful not to over estimate the information obtained by these readings and they should be taken into consideration along with the clinical data at hand with due regard also to the fact that the normal blood pressure is in all probability subject to no inconsiderable variation in range and that the age, sex, emotional state, posture, physical exertion and other influences further materially modify it, fluctuations of 15-25 m.m. not infrequently being encountered, the most fruitful source of error probably being the psychic state of the patient at the time of examination. As a rule the diurnal readings in any patient are fairly constant, except as modified by physiological conditions, so that when one encounters a pressure beyond the average usually found in persons of a certain age, one's suspicion of its having a pathological significance should be at once aroused and an effort made to determine its indications by an inquiry into the condition of the arteries, the heart and the kidneys.

The use of the sphygmomanometer is of value in determining two essential elements: first, an estimation of the amount of work the heart is called on to perform above the normal, and second, an appreciation of its ability or disability to meet the extra demand.

An estimation of the systolic pressure furnishes much the most important information although much stress has been placed on variations in the diastolic and pulse pressures.

As to pulse pressure one is scarcely justified in basing any conclusions on it as in no way whatever is it an index of the cardiac output in which capacity it has been largely considered in the determination of changes in the circulation in disease processes or in the estimation of the effects of medication. The reason for this failure is that while the amplitude of the pulse and the cardiac output may increase and decrease more or less synchronously there is no quantitative relation between them as the pulse pressure may at different times correspond to systolic discharges of very different volumes. Then, too, when one considers that comparison of pulse pressure observations at hourly intervals in the same individual quite usually exhibit considerable variations how much less can readings be depended on when an isolated observation is compared with a remotely preceding isolated observation in the same individual or an attempt made to estimate the comparative values in different individuals.

Determination of the diastolic pressure has been subject to much variation of opinion as to whether the point of greatest amplitude of excursion of the mercury or the suscultatory method more accurately defines it, and if the latter which sound phase should be interpreted as significant of the diastolic pressure. The consensus of opinion at present is that the suscultatory method is the most practical and that the termination of the fourth sound phase or the point of cessation of the loud sound, not the cessation of all sound, should be the criterion. As with the systolic pressure, this too, is subject, contrary to general opinion, to quite considerable variation and I share with Cabot and many others the opinion that we know too little about it to adjudicate its significance let alone to draw any hard and fast diagnostic or prognostic conclusions. Normally it may vary in adults between 70 and 100 m.m.

In m.m. of mercury the systolic pressure in adults may be stated to vary between 110 and 150, and for any individual this may be roughly arrived at by adding 100 to the patient's age, the figure thus obtained representing the high average for that particular period of life, this applying arbitrarily to persons between 20 and 50 years of age. Figures showing any definite increase over this must be looked on with more than suspicion and as likely evidence of some pathological condition.

Increased pressure is met with under a number of conditions but one's mind usually associates it with one or more of the following classes:

1. Simple hyperpiesis or essential hypertension.
2. Hyperpiesis with arterial sclerosis.
3. Hyperpiesis with renal disease and arterial sclerosis.

I wish to make reference particularly to the condition of hypertension in which we have permanent increase of blood pressure without discoverable pathologic anatomic changes in the vessels or kidney. Much discussion has of recent been carried on as to the etiologic and pathologic relations of this type of hypertension so frequently encountered in middle aged persons of both sexes. Some of these have their origin no doubt in the focal infections, the intoxications of alimentary origin or those arising in connection with disturbances of metabolism, the toxic element acting on the vaso motor

centre or problematically on the supra renals producing spasm of the smaller vessels with consequently increased peripheral resistance and the necessity for an increase in the blood pressure to maintain an efficient circulation. It is most likely to arise in high strung, nervous or emotional individuals and it has a frequently interesting inception at about the period of the menopause in women, particularly those who have a tendency to become obese.

This hyperpietic condition must be considered in its relation to arterial sclerosis and renal disease with their consequent ultimate damage to the myocardium. Some no doubt pursue a more or less benign course the heart simply undergoing hypertrophy to meet the increased demand. Others and probably the larger percentage even in spite of a careful regimen progress relentlessly and sooner or later develop a vascular pathology of which the hypertension was no doubt in its earlier phases an evolutionary part.

The symptomatology of these problems can scarcely be dissociated from that arising in the various viscera in which the circulation is compromised. The early manifestations are variable and depend in great measure on the reaction of the individual to discomfort and upon which vascular area bears the initial assault. The routine use of the sphygmomanometer in the examination of adults detects many, while unfortunately, many more do not come under observation until distress of cardiac origin, a cerebral accident, or profound disturbances of the renal functions such as uraemia, apprise the physician that he is no longer dealing with a simple hypertensive process but that vascular, renal and cardiac pathology has already made considerable aggression.

In early cases no evidence other than that obtained by the sphygmomanometer may at the time or even later be forthcoming that the increase of tension which is a compensatory process, is present. The pressure may be moderate, 175 or range as high as 250 or even 300, but the higher pressures are almost always associated with definite renal changes as evidenced by alteration of the quantity of the urine and the frank presence of albumen and casts.

Here it is wise for us to keep in mind the fact that the usual routine examination of the urine may not acquaint us with the true state of the kidney which may be disclosed only by various tests of function or more subtly by an examination of the blood revealing evidence of urea, creatinin, etc., retained in excess of the normal.

Sooner or later the gradual rise in pressure produces hypertrophy of the cardiac musculature and in the vessels, hypermyotrophy supervenes, and this is no doubt present in varying degrees at a much earlier period than we are wont to suppose though if we are careful in our investigation the hearts apex will usually, but far from always display some displacement, though slight, in a downward and outward direction and the artery under the finger will feel thickened and somewhat "rubbery."

The symptoms referable to the nervous and circulatory systems are probably the earliest to appear. A sense of fatigue, physical and mental, inability to concentrate, irritability, drowsiness or insomnia, digestive disturbances, some variable headache and slight dizziness with occasional pain in the occiptal region are frequent, while coincident with this or somewhat later, vascular pulsation and palpitation and slight dyspnoea on exertion appear, the latter significant of a more or less marked limitation of the field of cardiac response.

A transition from this condition of simple hypertension to that of definite arterial sclerosis with its disconcerting clinical course and foreboding outlook fortunately does not always supervene and many individuals follow for many years energetic pursuits, their hypertension exercising but a minor factor in curtailing their activities or influencing the duration of their life.

The outlook then depends, only to a limited extent, on the height of the pressure, the determining prognostic factors being the extent of the changes in the vessels, heart, kidneys and brain, the supervention of these occurring coincidently with the onset of the hypertension, or at a more or less remote period in its course.

A more or less permanent reduction in the pressure is possible, in some, if proper cooperation of the patient can be obtained but even when this is possible, the aim cannot always be accomplished. The best results are obtained from management rather than from drugs. In my own experience all drugs of the vaso dilator type, including the lately much vaunted Benzyl Benzoate, have been a total failure in so far as a reduction of pressure may be a sign of their utility. The value of rest is far from appreciated. Rest in bed for a few hours a day or a few consecutive days or weeks as the individual situation may demand or permit and the removal so far as possible of mental strain

and emotion will accomplish more than all our drug therapy. The influence of diet has been and is the subject of much controversy with particular reference to the use of animal proteins. For a short period at the commencement of treatment, I am in the habit of cutting out all meats, but I am convinced that its continual exclusion from the dietary is of no benefit to the patient, while in limited amounts it does no harm. It serves to vary the monotony of the meals and most patients experience a sense of feeling better with its moderate use. On the other hand extractives should be excluded on the ground of having no nutritional value while they may act as vaso constrictors and entail more work on the kidney which may already be damaged. Excesses in feeding should be avoided and the use of alcohol and tobacco abandoned or reduced to a minimum. The fluid intake should be curtailed as in excess it undoubtedly increases the blood volume and this may tend to raise pressure, while with renal insufficiency present, it may provoke edema. For similar reasons the intake of salt should be restricted.

Purgatives undoubtedly exercise a beneficial influence, those which tend to produce fluid motions being the most useful. Daily evacuations, the frequency depending on the condition of the individual, are much more useful than the occasional use of more active purgatives, although in the form of mercury, these are of undoubted benefit.

When exercise is permissible, walking, bowling, golfing or horseback riding are the best forms and on no account should hurry or excitement be permitted. Gradually the routine of the patient can be more or less completely re-established.

So far I have spoken of blood pressure only with reference to hypertensive states, but I wish to call attention to the variation in which the arterial pressure is constantly subnormal, a condition of hypotension. Like hypertension, it too, may occur in association with many pathological conditions such as Addison's disease, in which it is a striking symptom, and others in which it is less marked, as various infections, acute cardiac disease, shock, etc., in which the relationship is quite obvious. But there is a type of case which is apparently not linked up with any other disorder and to which the term essential hypotension might well be applied. It may be regarded as an evidence of asthenia and at times appears to have a familiar relationship. The factors in the causation of this type are diminished ventricular output and lowered vascular tone, the latter being the chief one.

The patients comprising this group are usually classed as neurasthenics. They complain of fatigue, are readily exhausted, the extremities are cold, often cyanotic, the palms of the hands are moist and they have a tendency to mental depression. As with many cases of hypertension, so with many or quite the majority of this hypotensive group, the sphygmomanometer directs our attention to it.

In their treatment here also, as in hypertension, the best results come from management. They should have outdoor work and recreation always short of the point of fatigue. The diet should be generous and include the articles restricted in hypertension such as meats, gravies and extractives. They should be encouraged to take fluids freely. The bowels should be kept free but severe purgation should be avoided. A morning cold sponge, followed by a good rub increases their vigor. In the way of drugs, few can be mentioned that might be of any service. Nux Vomica is valuable as a tonic to the nervous system, while Pituitary extract and Adrenalin might possibly be useful in cases where a disturbance of the function of these internal secretory organs was suspected. Ergot has been recommended because of its problematic action on the nonstriped muscle of the vascular system.

FRACTURES OF THE LOWER THIRD OF TIBIA AND FIBULA

A. D. LAFERTE, M. D.
DETROIT, MICH.

In taking up fractures of the lower third of the tibia and fibula, it is not my intention of reviewing the literature concerning this subject, meagre as it is, nor to go into any detail concerning the pathology. I merely wish to present to you a method of extend-

Fig. 1.
Plaster Boot

ing and fixing these fractures, which has worked out excellently in a great number of cases.

It was my good fortune to care for a considerable number of fractures in Base Hospital No. 17 in France, since we had approxi-

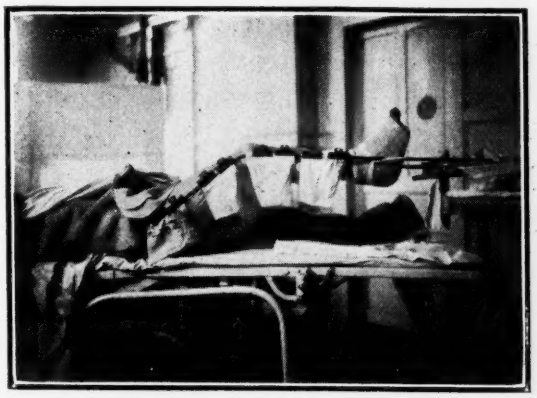

Fig. 2.
Plaster Boot in Thomas Splint.

mately 200 beds given over to bone and joint injuries, and these cases were evacuated as soon as we felt that this could be safely done, without disturbing the injured member. The beds were immediately refilled with new cases, this giving opportunity for the handling of a great number of bone injuries, for all of which I was personally responsible,

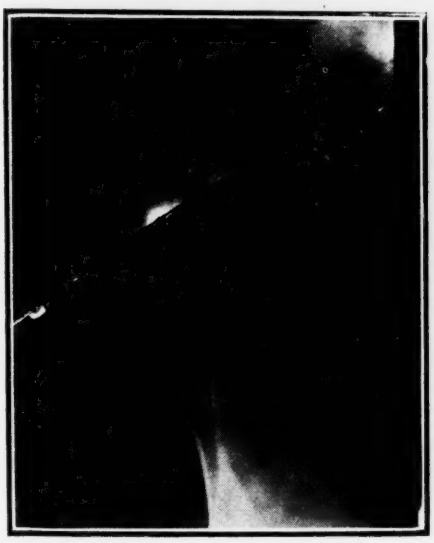

Fig. 3.
Case 1. Immediately After Fracture.

and I wish to state that, beyond doubt, the greatest worries were in connection with the fracture under discussion, until our method of extension and fixation was worked out.

As you know where both bones of the leg are fractured in the lower third, the fracture of the tibia is usually oblique and the lower fragment displaces posteriorly and externally, and even though we are able to obtain a reduction, it is almost impossible to hold it with the usual splints or plaster cast, for the reason, that the obliquity of the tibial fracture offers little resistance to the displacement consequent to the muscle contraction.

What must we do to prevent this muscle contraction? The answer of course, is—apply extension. Very simple, but to what shall we attach our extension? The fracture is so low that it is impossible to obtain enough skin surface for the usual application of adhesive tape or glue, and even

Fig. 4.
Case 1. Immediately After Application of Boot and Splint.

though we could attach our extension in this manner, it would not remain secure long enough to hold the fragments in place, because it is a remarkable fact that union in this area is more indolent than in any other part of the body, due probably, to the lack of soft parts over the tibia.

In order, therefore, to present a surface sufficient for the traction we apply a plaster boot. This extending from the toes to the fracture line, having first applied two pieces of felt, one-fourth inch in thickness; one over the doreum of the foot extending from fracture line to toes and broad enough to cover both malleoli; the other, on the back, extending from fracture line to heel, this being wide enough to overlap the former, thus giving two thicknesses of felt over

each malleolus. These pads may be covered with a few layers of flannel bandages, over which the plaster is applied, and so moulded as to fit quite snugly above the ankle and rather free over dorsum and heel.

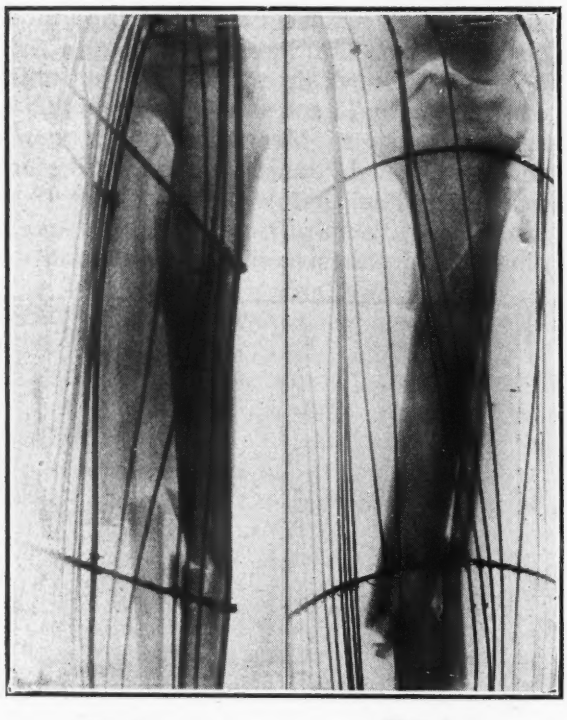

Fig. 5.
Case 2. Lateral View, With Original Splint. Note Over-riding of Fragments.

Fig. 6.
Case 2. Antero-posterior View. Note Angulation of Fragments.

When the plaster is sufficiently dry, a heavy piece of cotton bandage is looped about the boot in such a manner that the ends, which will be used for traction, will be given off one from the neighborhood of either malleolus.

A Thomas splint is now applied which has been bent to about a 135 degree angle at the knee, thus allowing the knee to flex relaxing the tendo-Achillis. Easier traction and consequently easier replacement of the fragments being obtained.

The traction is applied in the usual manner, quite tight, but not extreme.

After about three days the muscle spasm will have been overcome and it will be well to check up with the X-ray. If adjustment is necessary it is easily accomplished by changing the line of pull. Thus, if the lower fragment is still posterior, move the traction bands forward, causing hyperextension of the ankle and consequent forward movement of the lower fragment. Conversely, if the lower fragment be anterior, move the bands backward causing flexion. If there be lateral displacement, tighten the traction band on the side to which you wish the fragment to move.

If the lateral displacement is extreme it is easily corrected by passing a band around the leg over the fragment to be moved, and tightening it about the lateral bar of the splint.

The boot and splint are used until such time that manipulation no longer elicits any mobility of the fragment. Upon removal, however, one will find that bending is quite easy, nevertheless, the union is solid enough to prevent displacement and the usual plaster cast can now be applied.

The time necessary for the use of the boot and splint will generally be from six to eight weeks, while another four to six weeks in a cast is indicated before any weight bearing is to be attempted.

Fractures in the upper and middle thirds of the tibia will become united in about half this time, so we must not be mislead by statements in most surgical books which advise us, in fractures of both bones of the

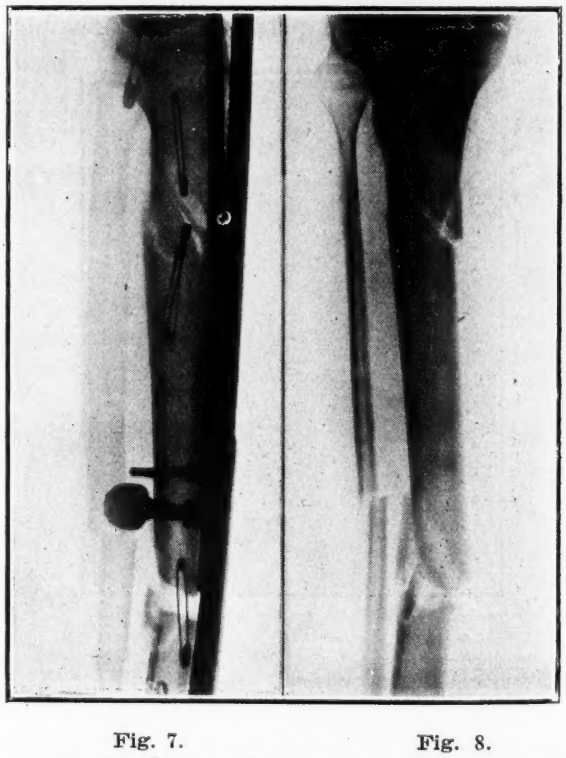

Fig. 7.
Case 2. Three days After Application of Boot and Splint.

Fig. 8.
Case 2. Three days After Application of Boot and Splint.

leg to immobilize for six weeks, use crutches for two, and a cane for two more. This is well and good in high up fractures, but

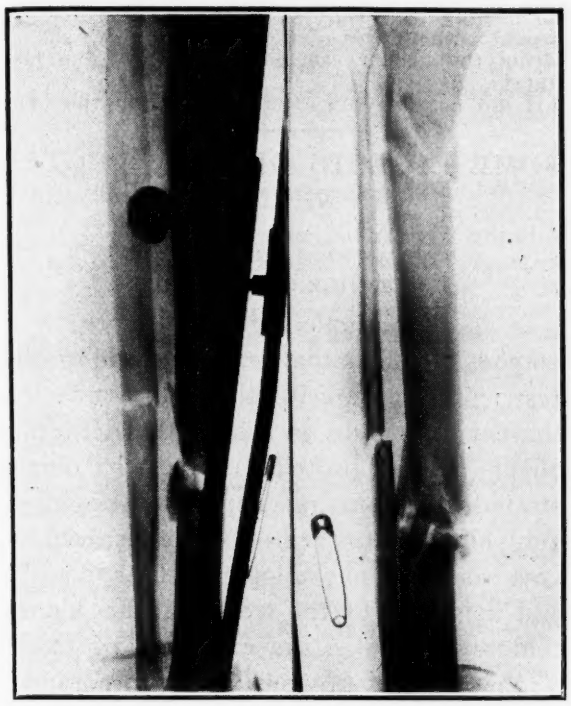

Fig. 9.
Case 2. Three Weeks After Application of Boot and Splint.

Fig. 10.
Case 2. Three Weeks After Application of Boot and Splint. Note Separation of Fragments.

would prove disastrous in the treatment of the fracture under consideration.

1551 David Whitney Bldg.

DISCUSSION

DR. GROVER PENBERTHY, Detroit: I like Dr. LaFerte's method of treating this type of fracture. It appears very simple. I think it would be more simple than my method. My method is the use of the St. Clair skate. I was glad that Dr. LaFerte spoke of indolent fractures. That was my experience before using the St. Clair skate. The text books teach us that fractures which are treated with casts in which there is no motion or irritation do not unite as readily. I have some lantern slides to demonstrate the St. Clair skate.

In attaching the strips of adhesive we use a preparation consisting of two-thirds rubber cement and one-third ether. Of course in using this skate you have to watch the temperature of the room. If the nurse allows the room to become too warm the adhesive plaster becomes loose and you lose the benefit of the treatment. I experimented on one case, a fracture of the tibia and fibula, which I dressed with a molded plaster cast. At the end of three or four weeks no callus was thrown out. I then put on the St. Clair skid and immediately a callus started to form and the patient was then given an ambulatory splint. There is a cuff at the point of fracture and two metal bars on the side of the leg with a hinge at the ankle joint.

We also use the Delby plaster mold. It is very excellent. We are trying to get the patients up in two or three weeks. Where we have only a transverse fracture this Denby plaster mold allows the patient to get up and about and to put weight on the leg.

DR. J. D. MATTHEWS, Detroit: I was very much interested in Dr. LaFerte's paper and quite agree with him. His fractures were all of the compound comminuted nature and he certainly got good results. Some of the conditions are most trying. You get a fracture of the malleolus with the foot in abduction, a torn interosseous ligement and an overriding of the fragments, and I cannot conceive of a more complicated condition to treat. The first thing in a fracture of this nature in order to bring about reduction is to overcome muscular contraction. It has been my policy to determine first the state of the muscles that are in contraction. In this case I think it is a good plan, as Dr. LaFerte said, to flex the knee so as to relax the gastrocnemius and plantaris. Another thing, where there is an obstinate condition of the muscles so we cannot bring about a reduction, it is a good plan to massage the parts so as to loosen the muscles. When you have done that you can put your fragments into normal condition.

Another point is the importance of suspension. I think suspension in these fractures means as much as the extension, because you have to preserve the normal angulation in order to prevent any deviation of the fragments; otherwise you are bound to have a bad functional result which is worse than shortening. The main thing to think of in this fracture is good reduction, proper extension and suspension. I have been using the Thomas splint, putting a plaster collar about the knee and a fenestrum over the patella, applying the plaster as Dr. Laferte suggests. The upper end of the traction support is incorporated into the cast at the knee and the lower end incorporated into the cast at the ankle. At the sole of the foot we have incorporated a stirrup for extension. It is a cheap contrivance; you have the limb exposed and always available for massage. I want to emphasize the importance of massage. You can get your patient up much earlier and you do not have the swelling that usually follows after fractures.

DR. N. CAMERON, Alpena: I have not tried the extension which Dr. LaFerte has advised. I have depended entirely upon plaster irons. I have tried Dr. Penberthy's method and found it quite satisfactory.

DR. R. H. SPENCER, Grand Rapids: Until I heard the paper and discussions I always looked upon fractures in this locality as comparatively easy of reduction. I have been practicing reduction in that locality for many years, many times before the X-ray was discovered, depending on manipulation to reduce them and never had a bad result. My method is much simpler than was described by the essayist or the discussants. I have an assistant hold the patient's foot and put on strong extension until I feel the bone going back into alignment. I keep on the extension until the cast is applied. I have found that this dressing has given me very good satisfaction. Within the last week I reduced two fractures in this locality. After they were reduced and the plaster splints applied, I had an X-ray taken. I expect to get a good result in these cases without the use of the complicated apparatus that has been described.

DR. R. C. STONE, Battle Creek: I wish to compliment the essayist on the results which he obtained in these very severe and unusual fractures. I think most of the men prior to the time they went into service had been in the habit of treating fractures in the same manner as Dr. Spencer has spoken. When they became more familiar with the St. Clair skate and Thomas splints they found that these fractures are much more easily treated in this way. It looks complicated but after you have handled them it is not so bad. I personally have never seen as good results in fractures of this type handled by any other means than the one described by the essayist.

DR. L. M. BOGART, Flint: Have you received and bad results from pressure on the malleolus?

DR. F. B. WALKER, Detroit: When certain special methods are advocated, I believe they should

be used in certain given cases and not as routine for cases of that general type. I look upon this method as I would some other means of securing and maintaining reduction. As you know, some of these cases do not override. There is not much displacement and if the fracture is reduced early, perhaps without much difficulty, and with a properly supported dressing, it can be kept in place. I would consider this method as another useful adjunct in the treatment of this class of cases. I would not feel like discarding all other methods for the sake of this or any other particular one.

Doctor LaFerte did not perhaps intend to include one other thought that is uppermost in my mind in all kinds of fractures. Perhaps he intentionally disregarded it. My idea is that the after-treatment, so-called, is really not after-treatment but is a part of the treatment. Just as the medical man would not discharge his case of long standing until he had gotten the man back to full recovery, so I think any case of fracture ought to be kept in hand until the patient is back on his feet or has as full function of the member as he had before the accident. That is the part of the treatment, the after-treatment so-called, which we as surgeons too often neglect. It has been spoken of and yet I am sure that we do not ordinarily carry those cases along as far and for as long a period as the case really demands. The use of splints with resulting stiffening of joints should be provided against in the early port of the treatment.

DR. MITCHELL, St. Joseph: There are many and various schemes for the treatment of fractures, but I think the method shown here today is superior to the others.

DR. C. W. CLARK, Caro: I want to say a few words in regard to after-treatment. In my service in the army I found a great many cases of fibrous ankylosis of the joint as a result of fracture, producing an almost useless limb. Our work was to keep up the tone of the muscles. We treated them with the electric current and other means of restoring muscle tone. Unless the treatment was followed up, as Dr. Walker said, the men would go home with a stiff knee or a stiff leg.

DR. A. D. LAFERTE, Detroit, (Closing): Dr. Penberthy advocates the use of the St. Clair skate I think it is excellent if you can hold the fracture long enough without tension to put your clue on. Dr. Penberthy was discussing fractures of the middle third. These can be treated in about half the time that fractures of the lower third can. I use the St. Clair skate a good deal in those fractures. I had to do away with it because I could not make it hold for eight weeks. It is very bad to have to change horses in the middle of the stream in fractures. Perhaps I did not have the proper glue. If we can get good results with this method I think it is a good thing. I am not advocating any one method of treating fractures; I am merely advocating the one which gives me the best results.

Dr. Matthews mentioned muscle contraction That is why I mentioned raying your cases three days after reduction. Do not ray your case under the fluoroscope and start pulling. That is wrong. You get so much tension that you will get a pressure sore. It is absolutely necessary to put on heavy tension at the start. Your fracture is not going to do very much better when the case leaves the table but in three days it will be end-to-end.

One man mentioned pressure on the malleolus. You would get pressure on the malleolus if you were not careful. You have to work the plaster very carefully. That is why I mentioned two felt pads, one going down the front to the toes, and the other coming down over the back. They are wide enough to overlap each other. If you do that you will not get pressure sores.

Dr. Walker spoke of better after-care of fractures. In transverse fractures you would not have to use this method.

Dr. Spencer mentioned putting on a plaster cast. If I could get the results he has had I would never use any other method. I have tried a good many times, and many others have tried, to hold oblique fractures of the lower third and put on plaster and I could not do it. I do not think in fractures of the lower third with a plaster cast and absolute immobility you will get union in the time you would without the cast. Therefore, I would condemn the plaster cast in fractures of the lower third.

I did not take up after-treatment in the paper.

SOME EFFECTS OF HIGH PROTEIN IN NEPHRITIS

THEODORE L. SQUIER, M. D.
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It is the function of this paper to re-emphasize the importance of rigid protein restriction in nephritis through a consideration of two cases in which the deliterious effects of high protein are clearly demonstrated. In treating nephritis the logical aim should be to secure for the diseased kidneys as near physiologic rest as possible, and inasmuch as the work of the kidneys centers largely in the excretion of protein waste products, obviously the protein intake should be restricted.

Contrary to this view, Epstein (1) has gone so far as to advocate high protein diet in a certain limited group of cases in which oedema and albuminuria are the outstanding features. It was shown by Newburgh (2) in 1918 that high protein diet over long periods produced in rabbits chronic diffuse, bilateral kidney lesions. During the last year, Squier and Newburgh (3) studied the effect of forced high protein feeding over short periods in normal young men. Preceeding forced meat meals careful urine examinations were made and in no instance were red blood corpuscles present in the sediment. In every instance red blood corpuscles were present following forced meat feeding but in no case was there albuminuria. On the other hand, in a group of cases similarly studied in which hypertension was the salient feature and in which save for low specific gravity the urine findings were negative, after forced protein, red blood corpuscles were invariably present in the sediment and in addition there was a distinct, though slight, albuminuria. In this study, we felt that definite evidence of renal irritation following high protein was obtained both in normal men and in patients with so called essential hypertension.

The following cases, studied at the University Hospital and presented through the courtesy of Dr. L. H. Newburgh, illustrate

an intimate relation between high protein and exacerbations of nephritic symptoms.

Case I. The patient, age 35, entered complaining of weakness. There was no history of scarlet fever. At 19 he had typhoid, complicated by phlebitis and was sick for three months. Fifteen years ago a submucous resection was done, previous to which he had been subject to frequent head colds. He has always been a heavy meat eater, according to both his own and his mother's statements.

In May, 1920 he first noticed a slight swelling of the ankles and a general tired feeling. On May 5, he went to a banquet at which he ate what he describes as a very large steak. On the following day the swelling of his ankles was much more marked and upon urine examination his doctor found 8 gms. of albumin per liter, together with large numbers of hyaline and granular casts. From this time he consulted his doctor frequently and kept an accurate daily record of his condition.

Inasmuch as he was assistant professor of Bacteriology and Physiological Chemistry in an Illinois University it was felt that reliance could be placed on the following data summarized from his records.

He was put to bed and given a strict milk diet with free saline catharsis. The oedema rapidly cleared and by the end of a week only a small amount of albumin was present in the urine and no casts were found. He was then given one chicken wing a day with 250 cc. of chicken broth, prepared by shredding the meat and heating gradually in one quart of water. During the first two days of the increased diet he felt much worse and on the next day he said "he felt as though someone had hit him over the head." The urine which had previously contained a trace of albumin and no casts now contained 12 grams of albumin per liter and very many casts.

He returned to milk diet with daily saline catharsis and at the end of one month the albuminuria had again cleared to a trace. His diet was once more increased, this time one poached egg on toast being added daily. After three days he subjectively felt much worse, his urine coagulated almost solid with albumin, and casts were present in enormous numbers. He immediately returned to low protein diet to which he had adhered up to the time of his admission, Aug. 1.

The routine physical examination showed teeth with many fillings. The heart apex was in the fifth intercostal space in the nipple line but no murmurs were present. An Orthodiagram showed moderate enlargement of the left sided type. The blood pressure was 135/90. Dental films showed evidence of irritation at the root of the lower second left molar and the tooth was later extracted. The blood was normal.

The urine was acid, specific gravity 1014-1016 and contained 7 grams of albumin per liter and a few hyaline and granular casts with occasional red blood corpuscles and a few white cells.

Phthalein excretion was 32% in the first hour, 13% second hour. Blood chemistry:

Incoag. N.	34.0 mg. per 100 cc.
Urea N.	15.0
Creatinin preformed	2.06
Total creatinin	6.30
Uric Acid	2.43

We wish to emphasize in this case the tremendous upset which followed the use of protein or protein extractives in the diet. On three separate occasions protein or its extractives apparently bore a causal relation to exacerbations of nephritic symptoms and such a relation is of even greater interest in view of the fact that the blood chemistry was normal at the time the patient was first seen.

The next case illustrates in a still more satisfactory manner, since the patient was under immediate observation, a striking exacerbation of nephritic symptoms following high protein.

Case II. The patient was a girl, age 13, admitted to the University Hospital April 14, complaining of swelling of the face and ankles. Her mother died of Brights Disease, otherwise the family history and past history are unimportant. There has been no chorea or rheumatism. On the first of January, 1920, she had an attack of dizziness, her face became swollen and her physician diagnosed scarlet fever. She was home from school for two weeks. Upon her return her face again quickly became swollen and in a week it was necessary for her to leave school. For the past two years she has had headaches which have lately become more frequent and severe. She has had what her father considers an abnormal appetite for meat. Examination on admission showed a well marked oedema of the face and ankles. The tonsils were definitely enlarged and the heart apex was in the fifth intercostal space in the nipple line. A blowing systolic murmur at the apex was well transmitted to the axilla. A2 was accentuated. The blood pressure was 185-105. Orthodiagram showed a moderate enlargement but no evidence of valvular disease. The eye grounds showed well marked neuroretinitis. The urine specific gravity varied from 1011 to 1028 and there was a floculent precipitate of albumin on heating. The sediment contained a number of red blood cells together with hyaline and granular casts. Phthalein excretion was 25% for the first and 15% for the second hour.

She was placed on a low protein salt poor diet with limited fluids. Her blood urea on the sixth day was 38 mg. per 100 cc. The oedema gradually disappeared and her weight fell correspondingly from 117 pounds on admission, to 105 pounds on April 29, which was approximately her normal weight. The urine sediment at this time contained hyaline casts but no red blood corpuscles. On the 28th and 29th there was added to the low protein diet 5 grams of salt and no restriction put on fluid intake. The salt was promptly excreted and there was no subjective disturbance of any kind.

On May 5 her weight was still 105 pounds and her blood urea was 18 mg. per 100 cc. The urine contained 6 grams of albumin per liter and no red corpuscles were present in the sediment. On the following day, May 6, she ate in addition to her low protein diet 235 grams of chicken at noon and 295 grams at night making a total meat intake for the day of 530 grams. She was allowed salt and as much water as she desired in order that the condition with respect to these factors might be as nearly as possible the same as on the days when she was given salt and unrestricted fluids but low protein diet.

On the day following the meat, May 7, her condition was described in the ward notes as follows: "She complained this morning of considerable headache which has occurred for the first time since May 2. At noon she refused most of her dinner because of nausea and she has vomited three times today. Previously she has been up around the ward but today, although not ordered to do so, she has stayed in bed most of the time. Her face appears oedematous." Her blood urea on the morning of the day following the meat was 84 mg. as

compared with 18 mg. on the preceding day. The urine contained 35 grams of albumin per liter during the day as compared with 6 grams per liter before the meat. The phthalein excretion was 18% for the first hour and 10% the second hour as compared with 25% and 15% April 14th, and 30% and 10% April 28th. Furthermore, the urine again contained a fairly large number of red corpuscles. On low protein diet the albuminuria quickly diminished and the night urine of May 7th contained but 9 grams of albumin per liter and that collected during the subsequent 24 hour period was at the original level of 6 grams per liter. Her weight, which on May 5th was 105 pounds, increased after the meat to a maximum on May 8th of 110½ pounds. The course of the reaction is illustrated in the chart.

It is to be borne in mind that high meat feeding would not have been attempted had not the therapeutic value of such diet been advocated. Subsequent rigid low protein diet quickly brought the patient's condition back to the original level and inasmuch as both she and her father were greatly impressed by the necessity for rigid protein restriction we felt that her subsequent willing co-operation counter balanced any evil effects of the reaction.

SUMMARY AND DISCUSSION

Two cases are presented, in one of which there was a history of three separate exacerbations of nephritic symptoms following the addition of meat or meat extractives to the diet. Inasmuch as the blood chemistry was normal at the time this patient was first seen, the disturbance following protein is of even greater significance, for many clinicians are inclined to feel that in the absence of distinct evidence of nitrogen retention, a rather liberal diet may be allowed.

In the second case under experimental conditions and consequently in a much more satisfactory manner the same reaction to protein was demonstrated. Following two forced meat meals the blood urea increased from 18 to 84 mg. per 100 cc., the albuminuria increased from 6 gms. per liter to a maximum of 35 gms. per liter and the phthalein excretion for two hours was diminished from 40% to 28%. There was a distinct increase in oedema evidenced by a gain of 5½ lbs. in weight in the course of two days, and in addition there were headache, nausea, lassitude and other symptoms of toxemia.

Epstein (1) ascribes the oedema of parenchymatous nephritis to a decrease in the osmotic pressure of the blood resulting from the constant loss of protein by the blood serum, thus favoring imbition and retention of fluids by the tissues. Consequently he recommends a high protein low fat diet. Kahn (4) however failed to find the disturbance in the globulin albumin ratio of the blood described by Epstein and concluded not only that such a condition must be exceedingly rare but that feeding patients, suffering from chronic parenchymatous nephritis with protein rich fat, poor diet is a rather risky undertaking.

The meat feeding experiments of Squier and Newburgh carried out with normal young men, demonstrated that high meat feeding does cause renal irritation as evidenced by the appearance of red cells in the urine. Similarly, patients with hypertension in which sclerotic kidney lesions undoubtedly were present, reacted to meat diet in a more pronounced manner by developing a mild albuminuria in addition to the red cells.

The two cases now presented, complete the sequence by demonstrating the severe reaction which may follow high meat diet when the kidneys are already badly damaged and substantiate Kahn's conclusion that feeding such patients a protein rich diet is in many cases not only poor therapeutics, but dangerous.

DR. W. H. MARSHALL, Flint: A short time ago I was at Ann Arbor, and saw some of Dr. Newburgh's sections. I think they are most interesting.

I tried the Epstein diet on two cases of chronic parenchymatous nephritis. There was an increased diuresis for a few days and then a subsequent relapse. But the ultimate result was, I have not much faith in the Epstein diet. For several years since my experience with epidemic trench nephritis in England, I have been in the habit of placing them on a diet for a few days of sugar of milk and lemonade, which seems to render the urine alkaline. I think it is useful. It has at least been so in my experience.

This is a most interesting paper, I am sure.

DR. W. D. MAYER, Detroit: I wish to say that I was under Dr. Epstein in the work on this problem. I recall distinctly two cases that were greatly edematous. One man was so edematous he could scarcely move about in the bed. We tried all the usual things that were used in the treatment of this type of nephritis. His urine boiled solid, and all that sort of thing. Then Dr. Epstein hit upon giving him this feeding, and then that man voided as much as four or five thousand. At the time he advanced many arguments, and claimed it was due to the feedings. I was always somewhat impressed with the fact he might have been dealing with acute nephritis, and the acute nephritis was getting well.

There are two cases I recall distinctly. Some marvelous change did occur on the institution of this high general proteid feeding. I had occasion to talk with him since, and he still claims he has a very good thing. Probably it is a good thing.

DR. M. J. CAPRON, Battle Creek: I was extremely interested in Dr. Squier's paper. We had one patient who showed marked edema. He showed a marked amount of albumin in the urine. After trying a low protein diet and other kinds of feeding with this type of kidney, we tried a high protein diet without any benefit, and also a marked increase in the amount of albumin. On blood examination, we found an increase in total nitrogen.

We have used for a long time low protein diet in treating these nephritic cases. Dr. Squier mentioned the fact that you get increase in the nitrogen

waste material of the body by the use of high protein diet. We have noticed for some considerable time in cases that showed a blood pressure of 100 or above, they had a negative urine finding, and also normal blood finding. By increasing the amount of protein we could get an increased amount of waste material in the blood, and also produce albumin in the urine. On the other hand, we have noticed for a long time with those that had an enormous increase in the protein waste materials put them on a low protein diet and we could secure a remarkable reduction in the protein content of the blood.

DR. H. M. FREUND, Detroit: There are a few things in Dr. Squier's paper I wish to just speak of. First, of course, Dr. Squier speaks of his cases being parenchymatous nephritis. Of course, that is a rather broad classification, I think you will admit. Just what the underlying pathologic picture is of this type of protein nephritis, if he wants to call it that—that is a thing I have not definitely in mind. It is a nephritis, and not a nephrosis he is dealing with.

The question of the high protein diet of Dr. Epstein. I think Dr. Epstein points out that these cases also suffer from a very severe anemia. In other words, he couples the picture of tremendous albumin loss with the severe anemia. a great many of these cases are not of nephritis, but are definitely nephrosis. Now, I believe that there are cases that can be properly picked out of nephrosis, not belonging to the nephritis group at all, where there is much albumin lost. You can see increased hydremia, general anasarea, and the anemia in which the substitution of the protein and the addition of iron in the form either of hypodermic administration or oral administration definitely improves the cases. What the explanation of it is, I am not ready to say. Whether it increases the globulin content of the blood, whether the addition of iron thus increasing the quantity of hemoglobin in the circulation, is a factor, is difficult to say. There are occasionally cases of nephrosis that are definitely benefited by high protein feeding.

Finally, I want to ask Dr. Squier how he accounts for the fact that a functional test such as the phthalein output falls especially in the last case he cites. Why should there be a definite fall of phthalein in so short a time? If we could readily explain that functional change, we would come to a much clearer understanding of some of the transient forms of albuminuria without nitrogen retention.

DR. T. L. SQUIER, Battle Creek, (Closing): Dr. Marshall's and Dr. Mayer's discussion of the paper can be grouped together. In this connection I would like to cite one other case that we had at the University Hospital, in which the Epstein treatment was used. It was a case in which, apparently, we did get benefit from high protein diet. The patient was one who showed edema and a large albuminuria, with red blood corpuscles in the urine, and so on. He was placed on a high protein diet, just as was the girl whom I mentioned, After he was absolutely restricted as to his salt intake and his fluids limited during in spite of high protein diet his weight fell over a considerable period. As salt was added to the diet, he immediately had a return of his edema. Similarly the patient when treated with low protein diet plus salt showed edema. So we wondered at the time whether or not a large number of these cases were not cases of salt retention.

One of the difficulties with the treatment, as I see it, is in picking out the cases of pure nephrosis, such as Epstein describes. It seems to me that Epstein's work cannot be questioned in any way. I do not intend to question that. His data is the result of careful laboratory analysis. In a certain very restricted group of cases, he must get the results which he describes, and the results are very striking. The feature which I wish to bring out is that it is very difficult to pick the type of cases that we can use for high protein diet.

Dr. Freund's question regarding the phthalein elimination is a very interesting one. In the work which I cited in which normal individuals and hypertension cases were fed high protein over a short period, we got extremely interesting results.

In the normal individuals we found a marked increase in the phthalein elimination after the giving of high protein. In those, with nephritic disturbances, we found occasionally a diminution of the phthalein output, and occasionally an increase in the output. We ascribed this change to a diuretic action on the kidney cells. In one place, a definite irritation. In the other place, the injury to the kidney had proceeded so far that along with edema in other parts of the body, there was edema in the kidney as well, and so we have really a diminution instead of increase in the phthalein output. On no other basis could we reach an explanation of this apparent discrepancy between the results.

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A TYPICAL CASE OF BOTULISM AND ITS SPECIFIC THERAPY

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Food poisoning in its various forms in times past may have seemed to some of us a rather indefinite clinical entity rarely to be met or seldom considered of importance. One form, however—that due to the toxin of bacillus botulinus—is quite another matter.

HISTORICAL

From the earliest reported case in 1735 botulism—so-called—has occurred in numerous outbreaks in various parts of the world, notably in the eighteenth and nineteenth centuries in South Germany and the other countries of central and western Europe, and recently with apparently increasing frequency, in our own country. The classic description of the outbreak at Elle Selles, Belgium in 1895 by Van Ermengen, with the first exact work in establishing the etiology, is well known to most of us. It is significant because of the widespread distribution of food products from that state to learn from Dickson's splendid monograph, and from government departmental reports, that a great majority of American cases have occurred in California.

In the middle western states as a group, and in our own state of Michigan in particular, human botulinus poisoning has been comparatively rare. However, in January of this year there occurred in Grand Rapids

one of the largest outbreaks in point of number of persons affected of which we have any knowledge. This outbreak occurred among nurses and employes in a hospital which buys only first class food stuffs and in which the greatest care is employed in the preparation of them. Consequently, it is with the thought that as such a misfortune may come to others, and that possibly the data secured as a result of our experience may be of some value, I presume to present briefly the outstanding features of a typical case of the group. Kindly let me say that I present this case only as the spokesman for all of the men on medical service at Blodgett Memorial Hospital who contributed so much to the care of these patients and to the investigative work over a period of several weeks.

Hospital No. 39417 Age—18 years
History No. A-6007 Nurse in Training
Patient—Miss E. O. American

First reported ill, Monday morning, Jan. 24, 1921.

COMPLAINT

1. Dizziness.
2. Blurred vision.
3. Nausea and vomiting.
4. Thick tongue and speech.
5. Difficulty in swallowing.

HISTORY OF COMPLAINT

Patient first began to feel dizzy Sunday morning, Jan. 23 at about 11 o'clock. Vision was blurred at that time and double vision was present from the onset. These symptoms persisted throughout the day and became more marked but patient remained on duty all day and did not report illness. She went to bed at 9 o'clock at night very dizzy but did not notice dizziness when lying quietly in bed, only upon sitting or standing.

Nausea and vomiting came on Sunday evening and was rather severe for a few hours and then disappeared entirely.

Difficulty in swallowing and thick tongue were first noted about 4 o'clock Monday afternoon. With this there was a sense of tightness in the throat so that the patient could not even swallow liquids.

At the onset and shortly after, the patient noted no headache, no pain, chills or fever, no diarrhoea or constipation. Later, however, constipation was most marked.

Previous history included the following:

Medical—Usual diseases of childhood only.
Surgical—Negative.
Menstrual—Flow began at 13. Regular. Nothing abnormal.
Family History—No chronic illness.
General—Negative.
Physical Examination—A well nourished, well developed young woman of good color who is too dizzy to stand or sit. She lies in bed with eyes closed because the light hurts the eyes. There is noticeable ptosis of both eye lids and a slight divergent squint. Sclerae—clear. Pupils react to light, sluggishly to accommodation, are equal and regular. No sinus tenderness on palpation.
Lips—Dry,
Tongue—Coated. Protruded well in midline. There is thick tenacious mucous present in the throat and this is raised with difficulty.
Tonsils—Small and show no free pus, marked scarring or exudate.
Teeth—Good, with no gross gum infection.
Thyroid—Not apparently or palpably enlarged.
Glands—Not palpably enlarged in the neck or elsewhere.
Chest—Symmetrical. Excursion and expansion apparently equal.
Heart—Left heart border 8½cm. from mid sternal line. Right heart border substernal. Apex beat—7½ cm. to left in fifth intercostal space.
Tones pure and regular and of fair quality.
Lungs—Borders apparently normal. Excursion equal. Resonance and fremitus normal. Breath sounds clear.
Abdomen—Uniform in contour. No distension. No rigidity, but a slight general tenderness.
Liver, kidneys and spleen not palpably enlarged or tender.
Genitalia—Negative externally and by rectal examination. No oedema of feet or legs.
Blood Pressure—In recumbent position—130-70.
Neurological Examination—Patient lies with eyes closed because of photophobia.
Mental functions, including memory, attention, orientation, etc., all clear.
No abnormal movements such as convulsive seizures, tremors, etc.
The speech shows some difficulty in pronouncing words with a "th"—such as thick, thistle, etc.
Cranial nerves—Involvement is suggested, affecting the third definitely the sixth slightly and not constantly, and the ninth and twelfth in some degree.
Spinal nerve involvement with motor disturbances indicated by the definite, well distributed weakness of muscles.
Reflexes carefully tested in detail reveal only sluggishness of the Patellar, Achilles, and Plantar responses. There is no Babinski, no Kernig, no rigidity of the neck.
There are no trophic symptoms noted such as herpes, etc.
Tests for sensory disturbance elicit no abnormal pain response.
Skin sensations apparently normal.
Sense of motion present and accurate.
Sympathetic nerve responses negative except only the eye condition.
Examination of the Eyes—Ptosis marked in both eyes.
Paralysis of accommodation is noted.
There is a divergent squint, with however, occasional spasmodic movements of the right eye toward the nose, indicating spasm of the right internal rectus muscle. Fundus shows disc and retina very red with arteries constricted and veins dilated. The findings indicate—First, partial paralysis of the third nerve, second, Toxic retinitis.
Temperature on admission was 99.
Pulse—84.
Respiration—20.
The urine was clear, straw color.
Specific gravity—1.028.
Acid reaction, no albumen, no sugar, no bile.
Microscopic examination revealed occasional hyalin cast, few epithelial cells, occasional leukocytes and amorphous urates.
The blood count showed 10,600 leucocytes with differential formula as follows:
Large lymphocytes—3.
Small lymphocytes—7.
Polymorphonuclears—89.
Eosinophile—1.
This blood count promptly became normal with 8,800 leucocytes, 32 small lymphocytes, 4 large

lymphocytes and 64 polymorphonuclears. Examination of stool was negative.

Prompt investigation from several standpoints within a few hours of onset of illness in this case led up to suspect as the source of poisoning certain canned spinach served for luncheon on Saturday, Jan. 22, 1921. It was found that this patient had eaten a usual serving of the spinach and had noted the first symptoms in her complaint about 23 hours later.

Toxic material from a can of the same brand of spinach fed to guinea pigs produced death in about 20 hours. Careful experimental work in type determination by Dr. Robert Graham of the Department of Animal Pathology of the University of Illinois revealed botulinus toxin Type A, which was promptly reported. This was later confirmed by Dr. Gigley in the State Food Inspector's office in Lansing, by Dr. Emerson of the Department of Hygiene, University of Michigan, and by Dr. Geiger and Dr. Meyer of the U. S. Public Health Service at San Francisco, Cal.

From the spinach samples and also from bowel contents there was later isolated by Dr. Graham, Dr. Emerson and Drs. Geiger and Meyer a motile, Gram positive, spore bearing, anaerobic bacillus corresponding to the bacillus botulinus.

Details of pathological study of experimental animal tissues and specimens from the three fatal cases are not yet complete, but work so far apparently indicates presence of lesions typical of botulinus cases as reported in the literature.

It may be of interest to see thrown on the screen the proof of type determination of the toxin present, and also to see the similarity in effect on the patient and on experimental fowls partaking of the same toxic material.

SYMPTOMATOLOGY

From the standpoint of symptomatology this case may impress upon us certain symptoms and signs which are most significant and admit of careful analysis and study. Briefly let me call attention to those which were outstanding and characteristic:

1. Blurred vision, becoming progressively more marked for several days and persisting for weeks.
2. Double vision or diplopia, appearing early but lasting but a few days.
3. Photophobia and lachrymation, moderately severe in this case, and persisting over a number of weeks.
4. Constriction in the throat, dryness of the throat, and the collection of thick mucus there.
5. Inability to swallow, lasting for almost four days.
6. Thickness of speech, persisting for a few days only.
7. Constipation, becoming very marked soon after the onset, not yielding to castor oil in large doses—per stomach tube—but responding on each occasion to hypodermic injection of pituitrin.
8. Weakness of muscles—extreme and persistent over a period of weeks.

DIAGNOSIS

Diagnosis of such cases of course is made easier by the occurrence in a group or large number. In isolated cases early diagnosis may not be so easy. With the history of the taking of any suggestive food, including various forms of canned or preserved meats, canned vegetables or fruits, or food stuffs kept in brine, such as olives, etc., together with a symptom complex such as is noted in this case, botulinus intoxication is strongly suggested, and when the subjective data is supported by the eye signs, including especially ptosis, frequently almost a mask-like or Parkinsonian facial expression, together with certain other typical signs of bulbar paresis or paralysis, the tentative diagnosis may be made with some assurance to be confirmed by the laboratory examination of suspected poisonous materials.

It may be of interest in connection with this case to know that one of the first men who saw it regarded it as a case of encephalitis lethargica, and there are certain clinical aspects of such cases which may be confused with some of the forms of sleeping sickness, which we have seen so prevalent in recent months. Careful analysis of clinical symptoms and signs, however, with reference to history and course should distinguish clearly for us in the great majority of cases.

From our experience it would seem that the average clinician should recognize fairly clearly in these cases a toxic paresis rather than a clear cut infection. Brain tumor, brain abscess, meningitis in various forms present occasional points in common, but with usual laboratory aids at hand, and regard for typical history, physical signs, and course, little confusion with these conditions should obtain.

Treatment in this case was to us a new field in which we had no previous experience, and possibly the average practitioner anywhere would have had the same problem to meet under the circumstances.

Dr. Corbus and myself are greatly indebted to Dr. G. W. McCaskey of Fort Wayne, Ind., for the suggestion contained in the report of cases from Decatur, Ind., published in the American Journal of Medical Sciences for July, 1919. Acting on data mentioned there we communicated promptly with Dr.

Robert Graham at the University of Illinois, and obtained from him a supply of polyvalent anti-toxic serum, and later the type A serum which was indicated by the type determination in our case.

Rest in bed and liquid diet were used from the onset, together with strychnin in doses of 1-60 of a grain hypodermically every four hours as indicated by the apparent bulbar paresis. Difficulty in swallowing made it necessary for us to introduce medication and various forms of liquid nourishment into the stomach per Ewald tube, and this we continued for four days. Castor oil and enemas were apparently of little avail in securing bowel activity, but, as noted above, pituitrin hypodermically accomplished satisfactory results on each occasion. We made use to some extent of rectal feeding by means of Murphy drip and for one day fed this patient with the duodenal tube. As soon as the anti-toxic serum was available we gave, in accordance with instructions from Dr. Graham, the usual de-sensitizing dose of three or four minims, and then regular dosage of from 5 to 15 cubic centimeters intravenously at intervals of 6 to 24 hours during the subsequent four days. Such dosage was more or less experimental and somewhat different from that employed by Dr. McCaskey, who used as a rule doses of one to ten cubic centimeters subcutaneously and one to five cc. intravenously at somewhat shorter intervals. In all this patient had 115 cc. of botulinus anti-toxic serum over a period of four and one-half days—45 cc. of which were polyvalent and 70 cc. type A serum. 97 cc. were given intravenously and 18 cc. subcutaneously. Definite improvement in swallowing, in speech, and in general appearance followed the administration of serum from the third day and at times temporary relief of the sense of constriction in the throat and of occasional difficulty in breathing was mentioned by the patient about an hour after the serum injection. As we look over this program of treatment we have felt that possibly even larger doses might have been given to better advantage. Signs of serum sickness appeared in this patient on the fifth day with urticaria rather marked. This was relieved symptomatically by the usual administration of adrenalin.

The course of the case has been of extreme interest to us. The patient is still unable to return to duty. She is, however, able to be up and about and is steadily convalescing, and on May 20 careful review of her subjective disturbance and objective findings brought only the complaint of persisting slight blurring of vision and rather marked weakness of the muscles of the back and legs. In the light of other case reports found in the literature we trust we may look forward to ultimate recovery, without, however, any definite assurance of complete freedom from residual paresis in some form.

As a result of our experience we have felt that in this case the anti-toxic serum was of definite and proven value. We have also felt that the use of it was in considerable measure responsible for the low mortality of 10.3% in our group of 29 cases of which we lost three.

Just how much further one can go under such circumstances is difficult to say, but there is at least suggested to us the desirability of having at hand in convenient centers throughout the state a supply of botulinus anti-toxic serum which may be used in a rational way as life saving aid in times of emergency..

DISCUSSION

DR. C. D. CAMP, Ann Arbor: I have been very much interested in the paper, not only because of the interesting way in which it was presented, but also because I have had an opportunity of seeing some of Dr. Wells' cases some time after their acute symptoms had subsided, and of looking over his case records.

With reference to the point made, the difference between botulism and encephalitis. The pathology is not very difficult. In both cases we are dealing with acute or subacute encephalitis affecting the gray matter of the basic ganglia in the floor of the fourth ventricle. There is, microscopically, very little change in the blood vessel wall and considerable hemorrhage extravasation more particularly noted in the case of encephalitis in the veins, but with nothing very characteristic so far as neural pathology is concerned. This does not mean, however, that the conditions are alike in their etiology or symptomatology because the symptomatology, after all, depends largely upon the location of the lesion rather than its pathology.

When we view the subject from a clinical standpoint, I can see very little resemblance between the two conditions. However, there is one point which, of course, confronts us forcibly, and that is, that botulism occurs in groups of cases. We rarely have a single case. It is almost always a group of cases who have been living together and eaten the same kind of food. They come down more or less within a few hours or days of each other with these characteristic symptoms. That is, we practically never have a case of encephalitis where we find—very rarely—more than one person in a household affected. If more than one, then there is considerable difference in the time of onset. So that on that point alone, the distinction is very obvious.

I have not seen cases where difficulty of speech was a marked symptom, whereas it is probably the most characteristic symptom of all in cases of botulism. With a case of encephalitis it is almost always characterized by a rise of temperature and other evidences of infection. You will find symptoms of encephalitis coming on gradually. Individual symptoms appear constantly. This clinical course of a case of encephalitis is the development of successive symptoms some times days, weeks or even months apart. Finally, in these cases of botulism—some that I examined in Grand Rapids—I

found no sequelae, none of the characteristic sequelae one finds so frequently in cases of encephalitis.

I might say with reference to the treatment of botulism that it seems to me from what I have heard and the study of the subject that the use of antitoxin is very effective. Dr. Heinen of the Laboratory of Hygiene at Ann Arbor has, at Ann Arbor, a supply of antitoxin for use in case of emergency.

DR. W. D. MAYER, Detroit: A year ago I was privileged to see two of these cases in Detroit, out at Grosse Point. I do not wish to enter into the clinical aspects of this disease. The question of treatment of course, came up, and we obtained some of this serum from Dr. Camp. In one case death resulted and the other case recovered.

I wish to emphasize the importance of having this serum available. At the time and thereafter we thought the serum had no especial value unless given immediately. However, it seems to work even if given some time afterwards. I believe it should be available for general distribution, probably through the Public Health Service, who have stations throughout the United States. I think, in the State of Michigan, we have our supply at Ann Arbor. I believe the Board of Health of Detroit was going to get some. I think we are pretty well looked after.

When one reads of the air trips from Champagne, Illinois to New York city, and so on, we feel there should be some agitation about health. One of the Detroit men who has had several cases in his own family has urged the distribution of this through the Public Health Service.

I wonder if it would not be a good idea to go on record that we urge the distribution of this serum through the Public Health Service. I would suggest some remarks on this by Dr. Wells.

DR. MERRILL WELLS, Grand Rapids, (Closing): I have very little to say in closing the discussion, except to say that the subject has been so much on our minds for so many months we might talk a long time on various phases of it.

Some of the best work in the country is being done by a section of the Public Health Service on botulism in California. I think there are under consideration at the present time in that section, means for the distribution of the serum throughout the country. There naturally arises in the minds of all of us questions of extent of involvement of the brain and the centers there when we consider the question of intra-spinal injection of the serum.

Serum intra-spinally, we used in only one case—a case in a very serious condition. We thought there was a temporary improvement following that. We did not have sufficient evidence to say whether there was or not. I am very grateful for Dr. Camp's discussion because, from the standpoint of neuropathology, we are all interested in these forms of possibly what I have spoken of as a toxic paresis. The absence, after a reasonable period, of signs we can attribute to definitely located lesions is somewhat significant. I was very glad to have Dr. Camp come to Grand Rapids and look over the eye-grounds of some of our patients. He remarked after going over some of the patients, the fact there was so little remaining evidence.

I do want to state a word in the way of recognition in the matter of action of the Section. It would seem to me that, in accord with Dr. Mayer's suggestion, it would be a very valuable thing to make a formal request as a branch of the State Society and communicate with the United States Public Health Service, if that seems best, or whatever other agency might promote the distribution of the serum, that there be an adequate supply somewhere about the state.

I am sure the laboratories at Ann Arbor under Dr. Camp's administration at present are very anxious to help us in any possible way in any emergency at the present time, the matter of time and distance being the only question.

BOTULISM

BENTON N. COLVER, M. D.
BATTLE CREEK, MICH.

IMPORTANCE TO THE OPHTHALMOLOGIST AND THE LARYNGOLOGIST

The importance of the study of this malady from the standpoint of the ophthalmologist and the larnygologist, lies in its high rate of mortality; its rapidity of course, but with a definite, insidious onset, showing non-alarming early symptoms; its tendency to group occurrence; and the fact that two out-standing early symptoms have to do with the eyes and the throat; and further, that only by early recognition and prompt treatment may the high mortality rate be obviated. If the first case of an outbreak is recognized the succeeding cases may be saved by prompt action, even though the first case itself may be diagnosed too late for successful therapy. It is often within the province of the ophthalmologist or laryngologist that the first warning occurs of the seriousness of the case.

EARLY HISTORY

As with many other diseases we may recognize in the older literature an occasional mysterious death or group of cases that were not understood, or diagnosed until the entity of botulism was proved, and the causative organism isolated and named by Von Ermengem in Belgium in 1895. These cases were what had been known for years as "sausage poisoning."(1) Von Ermengem had the opportunity to study 23 cases made ill at one time by eating brine-preserved ham. He isolated a typical bacillus from parts of this ham as well as from the bodies of patients. There were three deaths out of the 23 cases. The bacillus was named bacillus botulinus as the cases were clinically sausage (botulus) poisoning.

THE BACILLUS

The bacillus is strictly anerobic and produces its poison only at low temperatures, in the presence of considerable moisture and when light is excluded from the food. That portion of a piece of ham or vegetable just below the surface of the preserving fluid might be intensely toxic while any portion that is uncovered would be harmless. It has also been found that the poison forms very slowly, a long interval for the bacterial growth being necessary to form a lethal dose of toxin in the affected foodstuff. A most interesting point is that the bacillus itself is not pathogenic. Ingestion of the bacillus has no deleterious effect on the human. In 1910 Leuchs first recognized the production

of heterologous toxins by different strains of B. botulinus. Burke[2] established the occurrence of two types designated type A and type B. It is the toxin that produces the symptoms and death. This toxin has not been identified. Its toxicity is of highest intensity. A mere nibble of an infected string bean is sufficient well-nigh to kill the patient. A sip of the liquor from an affected can is likely to prove as fatal as a dose of hydrocyanic acid, even though far more insidious and deliberate in its course of action. Some observers are inclined to believe that the organism does produce toxin in the alimentary tract following the ingestion of preformed toxins and after paralysis of the intestine has set in.[3] McCaskey[4] also thinks that the bacilli growing in the colon probably continues to produce toxins which may be absorbed into the circulation. Orr[5] suggests that botulism may be due to an infection rather than to the ingestion of a preformed toxin. In this he differs from most observers. The botulinus toxin unlike other true toxins is capable of withstanding gastric and intestinal digestive processes.[6]

THE SPORE

The bacillus is spore-forming. The spores are viable after one year kept in hermetically sealed tubes protected from light. The extreme resisting power of the spores under various conditions indicates the necessity for sufficient safety factor in all commercial canning processes.[7] Pressure-steam sterilization will kill the spores but the ordinary home canning will not. It requires boiling for several hours to destroy the spores. On the other hand if affected food is opened for use and even if its spoiled condition is not observed, and the food is subjected to the ordinary house cooking temperature, the toxin is destroyed. This is true even though the bacilli themselves or their spores escape destruction and pass in to the gastro-intestinal tract with the food. Even if the bacilli should live in the intestine the specific toxin is rarely, if ever, produced at so high a temperature.[6] and never without the long time element. This is questioned by Burke, Elder and Pischel and by Orr and McCaskey as noted above. In certain experiments toxin freed spores were fed in large doses to guinea pigs. Certain strains produced death. A limited pathogenicity is thus indicated.[8]

THE FOOD SOURCES

It has long been held that meat products were the sole source of the toxin development. Pork was thought to be its favorite field. As long ago as 1900, however, American observers began to report cases which involved other products such as cheese, canned vegetables and even canned fruit. If this were true it was argued that the incidence would be much higher because of the American "can habit." It is estimated that a quarter of a billion cases of canned foods are used annually in this country. Why such a general consumption has not been followed by broadcast poisoning is indeed as yet unexplained. It was found that the percentage of spoiled cans ran up to 5 per cent before the steaming process of canning was introduced in the late nineties. Even recent tests have shown that from 5 to 8 per cent of certain batches of cans contain viable organisms. It is true that meat and fish cans were more frequently contaminated and further, that the meat organisms were more likely to be bacteria while the vegetable and fruit contamination were usually moulds. The first cases reported from commercially canned goods were seven cases in Kansas in 1916. The vegetables were string beans or spinach. Five of the seven patients died. The bacillus seems to have a rather general distribution in nature. It has been recovered (in 1918) from bruised fruit, from fruit that has been pecked by birds, from the leaves on string bean vines, from the claws of birds and from hog manure that came from hogs apparently well but that had recovered from an attack of botulism three months previous.[2] A recent personal communication from Graham, University of Illinois, states that "our investigations suggest that this organism is probably ubiquitous throughout the Mississippi Valley."

ITS CYCLE

The cycle of the bacillus is probably about as follows: It is to be found in animal excreta and then enters the garden. Here vegetables, fruit and grass are infected. This may be by wind-borne dust, or by insect and bird. Infected animals that may have recovered may bring the organism to the slaughter house either in their intestinal tracts or in the tissues of their own bodies. Then such handling of food as fails to destroy the infection permits the toxin formation in the can, or in the case of animal fodder, in the silo. Inadequate washing, the retention of unsound fruit or vegetables, incomplete sterilization and the ideal habitat for growth found in the tin can, produce the infected food, the can that is commercially known as the "swell." Not every such can is infected with the bacillus botulinus. It is

however presumptive evidence of grave danger and every housewife should be so instructed. It is possible, on the other hand, that a can may be infected with the B. botulinus without the can showing gross evidence of spoiling, either by odor or by gas formation.

VARIOUS OUTBREAKS

There have been outbreaks in various countries such as Belgium, France and Germany. England seems to have been spared. Dickson has established the common occurrence in the United States.(9) It is altogether likely that only a small proportion of the outbreaks have been recognized or recorded in this country. The available statistical data of the United States shows a death rate of 90 per cent among those first showing symptoms and a death rate of 60 per cent among those last showing symptoms.(3) The high mortality of these statistics may indicate that only the more virulent cases, and this means usually the group outbreaks, are diagnosed as such. The sporadic case, fatal or not, may not be recognized or reported.(13) Until quite recently only 64 deaths have been reported during the quarter of a century since its identification by Van Ermengem. The olive cases in Detroit, (10) and New York,(11) and the spinach cases and the asparagus cases (30) as well as the cheese cases(12) are all recent outbreaks. In the Section on General Medicine at this meeting Dr. Merrill Wells is discussing the recent outbreak at Grand Rapids. Cases have occurred in many states(4) and doubtless with further publicity and attention the incidence will be proved to be higher than at present rated. Already, indeed, the number of recorded cases begins to rise before the determined attack of federal, state and private investigators. Deaths have been reported from canned corn,(9) beets,(14) fruits,(15) and meats (ham and sausage)(16) Certain observers(15) found that practically all of the outbreaks they were able to study on the Pacific coast were due to the ingestion of home canned vegetables and fruits. The same observers however also showed that commercial canning processes are inefficient if the raw material happens to be contaminated with the spores of B. botulinus. Other outbreaks have indeed been shown to be due to commercially canned food.

INCIDENCE IN ANIMALS

The disease has been observed in many animals and with high mortality. Forage poisoning, silage poisoning or cryptogamic poisoning, has been reported in different sections of the United States during the past 70 years.(17)

Animal experimentation confirms the analogy, suggested by the late Dr. Leonard Pearson, of the University of Pennsylvania, between clinical forage poisoning, in animals and meat poisoning in man.(18) Bacilli morphologically and culturally resembling B. botulinus have been isolated from a silage originally associated with a natural outbreak of forage poisoning in mules.(19) In chickens it is called "limber neck." Its onset is early and its course is rapid. The chickens ingesting the residue of the same food as the family, are made violently ill and numbers of them die within a few hours before even the earliest warning symptom appears in the human victims. Advantage of these very sensitive animal detectors might properly be taken in case of suspected food. Such experiments should be made only in laboratory animals as the droppings of the infected chickens, if they are allowed to run free, scatters the bacteria. It has recently been shown that type A is fatal to mature chickens, while type B is non-toxic to the chickens. Still, the feces of these latter chickens are highly toxic to animals susceptible to type B. This suggests a dangerous avenue of distribution.(20) Animals that have been reported to be affected are horses, mules, cattle, cats, dogs, goats, pigeons, rabbits, turkeys and white mice. Outbreaks among horses and cattle have been also called cerebrospinal meningitis, cerebritis, staggers, blind-staggers and cornstalk disease.(4) In one group 18 cattle were sick and four died.(21)

THE SYMPTOMS

The symptomatology is of particular interest to this section. The initial constitutional effect of the toxins is on the circulation, the nervous system and the glandular organs. The more intense the toxins the earlier the onset and the graver the prognosis. In contradistinction to the meat poisonings produced by other organisms, those due to B. botulinus may show few or no symptoms directly referable to the intestinal tract, the chief symptoms being due to toxic interference with the cranial nerves.(22) Outside of a vague malaise, with possibly nausea and vomiting, the first symptom is usually ocular. The patient notes blurring or even diplopia which is accentuated by focusing for near vision. The eyelids feel heavy. There may be mydriasis and ptosis and in fact, general motor weakness in the distribution of the VIIth cranial nerves. In some patients the

pharyngeal symptoms appear first. The patient senses he is not well, but there are no pains, no fever, no rapid pulse and no localizing symptoms. Too often at this stage the patient and his family or even the family doctor attribute the vague illness to overwork, or lack of sleep or a supposed cold. The earliest symptom appears from 12 to 18 hours after ingestion of the toxic food. The next symptom beginning a few hours later is located in the throat. Deglutition seems less easy; the throat is dry, the tongue seems thick and not easily managed in enunciation. The patient may choke. The difficulty ranges from slight dysphagia to aphagia later. There may be regurgitation into the nasopharynx and nose. In speaking the words are blurred or mumbled. It is a question soon whether this is mechanical, due to the muscular affection of the pharynx and tongue, or whether it is not mental. At least, mental depression is a factor. The patient seems confused or bewildered or puzzled. He is slightly provoked at his own difficulty in speaking clearly and expressing himself freely.

By this time the patient has definite diplopia. He walks unsteadily. He is decidedly weak, he holds his head up with difficulty and to swallow is well-nigh impossible.

If no succour is granted there soon supervenes symptoms of respiratory embarrassment and irregularities of cardiac action. Severe attacks of transient weakness occur, syncopal in character. Constipation due to intestinal paralysis appears. The cause seems to be paralysis of the centers, rather than to visceral pathology. Death may result from choking, from cardiac failure or from respiratory failure.

If recovery is made the patient has a prolonged convalescence, the diplopia, blurred vision, pharyngeal activities and general muscular strength returning to normal very slowly. In one case[4] active borborygmus appeared as one of the first signs of improvement following the use of serum. The patient is too enfeebled to be about for some days after out of danger. The annoying and even threatening choking and pains in the throat may persist for three to five weeks, and it will likely be as much longer before he is considered well. Even then a hoarseness and occasional headache give evidence of the experience occasionally for from three to six months.

PATHOLOGY

Very little cellular pathology has been described. The bacillus botulinus has been recovered from the tissues of various victims. Warthin reports the finding of colonies of bacilli which seemed to be B. botulinus in the pons and medulla of one of our cases here reported. They were in the walls of small gas cysts. The small vessels of the brain stem are intensely engorged, but no marked cellular exudate is to be seen. It would seem that the toxin has its overwhelming effect in the various nerve nuclei without producing or permitting much tissue reaction.

Histological changes are found in the central nerve elements consisting of the disappearance of the chromophile granules, the formation of vacuoles and the ultimate disintegration of nerve cells. These changes have been found especially in the region of the third and fourth ventricles. This would account for the involvement of the vagus, hypoglossal and glossopharyngeal nerves.

Blood extravasation appears in the liver, spleen and kidneys. If death is delayed fatty degeneration of the parenchyma, softening of the intestinal coats and hemorrhagic areas all ensue.[4]

In animal postmortem examination hemorrhagic lesions were found in the outer wall of the small intestine and on the inner wall numerous punctate hemorrhages and highly injected areas. Grossly the following pathology was noted: Congestion of the lungs, areas of hyperaemia and hemorrhage in the mucous and serous membranes and gelatinous infiltration in the connective tissues.[23]

THERAPY—PROPHYLAXIS

The therapeutics is prophylactic and active. The first preventive measure has to do with the handling and caring for foods.[24] The food to be canned should be definitely sound. It should be thoroughly cleansed by washing. The room, the apparatus, and the general sanitation of the factory or kitchen should be up to standard by bacteriological tests. In canning, the only sure way of destroying the spores is by the steam-pressure process. Ordinary domestic canning would not insure against botulism in case infected raw foods were used. It is felt that the sugary solutions as ordinarily used and brine solutions of more than 6 per cent strength inhibit the formation of the toxin.

The second commercial safeguard is the careful study of each batch of cans. From each run, a number of cans should be taken for special observation. It has been noted above that a cool temperature encourages toxin production in infected cans. These tests cans therefore are to be stored in a cool room and after time enough has elapsed

the cans should be tested. They may be tested by looking for "swells," by bacteriological cultures, and by testing the juices on susceptible animals. It is impossible to select toxin containing samples without animal experiments.(24) The National Canners Association is investigating at great expense the subject of food poisoning. It is determined to improve commercial canning to prevent further outbreaks.(3) Naturally the true interest of the canners lies wholly in the direction of discovering what the danger is, how it arises and how it can be best avoided or overcome.(25)

A third safe-guard lies in the education of the housewife as to the dangers and the following facts. The affected food usually produces gas, thus causing a swelling of the can top. On opening, an affected can often squirts out some of the fluid, as though under pressure, which indeed it is. Further, the contents do not look normal; there are often gas bubbles and the food looks mushy. Next, the odor from an affected can is characteristic. Instead of the expected normal food odor, there is a sort of fatty-acid smell as comes from rancid butter. This odor is greatly accentuated if the food is moderately heated in an open dish. At this juncture the housewife must avoid the most common test of all—that of tasting. Because of the intense virulence of the toxin, a mere taste of the food may produce a grave illness. And further, the contents of the can must not be thrown out to the domestic animals, or on the ash pile or even into the garbage can. The affected food should be entirely destroyed by burning.(8) Merely boiling the food could make it non-toxic, and so not dangerous to any animal who might find it, but the ingestion of such boiled food would infect the intestinal tract of the animal and thus bring about a wider scattering of the bacillus. Spoiled food containing gases may appear to be boiling for several minutes before the true boiling point is reached and still be unsafe to eat. As noted above a can may be infected without these typical changes being evident. This must explain some of the outbreaks.

This subject has had so much publicity recently that the housewife is already forwarned to a great extent, but the ignorant or careless handling of food in public eating houses will still afford recurring outbreaks. The question of the prophylactic injection of antitoxin for those persons associated dietetically with the first case of a possible outbreak is worthy of serious consideration. The polyvalent antitoxin should be employed. Such prophylactic use might even be suggested where sporadic cases are occurring and the source is not yet known.(16) It would facilitate active treatment to establish state depots located in the centers of population where the serum and the services of Public Health experts could be promptly obtained. Prophylactic doses of botulinus antitoxin and related immune sera, developed by Graham, Brueckner and Pontius at the University of Kentucky protected experimental horses against daily ingestion of contaminated corn silage.(27)

Forssman and Lundstrom actively immunized rabbits and guinea pigs by using toxin that had been attenuated by heating for the first injection.(26)

There is one other point in prevention. That is the actual cooking of all food that is taken from cans. By this proceedure even if a spoiled food should escape detection, the toxin will be destroyed and its deadly action avoided.

ACTIVE THERAPY

In event a case should present itself (in Michigan) the first step is to notify the State Dairy and Food Commissioner at Lansing and make telephonic or telegraphic call on the University of Illinois for the polyvalent antiserum. Until botulinus antitoxin can be obtained from commercial sources it will be supplied by the Laboratory of Animal Pathology, University of Illinois, at Urbana, Illinois, in limited amounts, at the cost of production.(17) The patient is to be put at rest and his case assumed to be most serious even though the earliest symptom is slight. The general treatment is symptomatic. Early catharsis to empty the whole intestinal tract is clearly indicated. This will sweep out the toxic food and prevent possible further toxic elaboration. It is suggested that castor oil might be used in hope that it would combine with and attenuate the virulence of the toxin.(14) The use of thorough enemata and early lavage is also advisable. Pilocarpine to relieve the throat of mucus, and strychnine for general effect has been tried with apparent benefit.(3) In case difficulty in deglutition begins a duodenal tube may be passed through the nose and into the stomach. Through this the fluid need can be furnished with a minumum of distress to the patient. The next step is to recover any of the suspected food if possible, for immediate tests on chickens, and for laboratory study. Other members of the family should be warned as to possible symptoms. If the food itself is not to be had, get the name, brand, source and de-

tails in regard to the suspected food to facilitate official action in preventing other cases or a general outbreak.

An antitoxin was first produced in Europe in 1897.[28] Inasmuch as different strains produce heterologous toxins the polyvalent serum is used. It is advised in large amounts and intravenously.[29] The serum may be bacteriolytic or bactericidal as well as antitoxic.[3] It is likely that considerable of the disappointment in the use of the serum has been due to the fact that the proper type may not have been used (where polyvalent serum was not available) and that its use is usually begun late in the course of the severer cases. This is due to the difficulty in early recognition and the delay in obtaining the serum. The use of the serum after the organic pathology is established and the symptoms advanced, is of very questionable value, though the patient should have the benefit of the doubt. Cases have been reported where large doses were not well borne and small frequent doses seemed to yield better results. Professor Robert Graham advises the use of an anaphylactic dose of 2 minims followed by 5 to 10 cc. doses from 2 to 4 times a day up to 12 doses. It would seem that the preparation or at least the distribution of such serum might very properly come under the direction of the Division of Public Health in the proposed Department of Public Welfare. The infrequency of the cases would make the commercial handling of the serum unprofitable and expensive. Under the federal agency a supply might be maintained at the centers of population so that it could be obtained by all with a minimum of delay.

CASE REPORTS

Five cases have recently come to our attention, two of which terminated fatally. The first was diagnosed endemic encephalitis involving the lower cranial nerves (IXth-Xth-XIIth) as well as the IIIrd and VIth. The second case was also diagnosed encephalitis. Both of these succumbed within a very few days. About that time another case of true endemic encephalitis appeared. The attending physician knowing of the two fatal cases felt that this new case might possibly be similar and that all of them might be botulism. Accordingly, the authorities were communicated with and the situation thorougly canvassed. No new cases were found at that time though later the three other cases reported herein were sent in to be interviewed. These latter three patients are all nurses in training and wrote their own experiences, which seem to indicate mild attacks of botulism. All of the patients ate at various places so that it was impossible to trace the infected food to a common source or in fact to a proven food in any case. The food supplies of the Institution were gone over by the State and Federal agents. The only suspicious food was canned spinach which was shown in a few instances to be infected giving positive tests to type A. This same pack was also traced to other places locally and elsewhere by the authorities and infected cans were located. Whether or not this was the offending food in some of these cases is not proven. At least two of the cases did not eat inside the institution at all and all of them ate outside on occasion.

Case I. W. M. B., No. 136-615. Female, age 20 years. On Thursday morning, January 20 she noticed that she was a little dizzy, that her vision was dim and blurred, and that she had some difficulty in walking. She also had diplopia and ptosis. By noon she found it difficult to eat. Swallowing was worse by evening and she could not talk very well.

January 21. Tongue feels thick, stiff and is unable to swallow. (She consulted a physician, Dr. M. H. Newlove, at this time.) Is weak and drowsy. Very slight frontal headache. No fever, no chills, no cold or sore throat. (Had a menstrual period two weeks ago and another began yesterday.) Examination showed eyes heavy, patient drowsy, has to be roused to answer questions, general muscular weakness. There is paresis of the right superior rectus, the left inferior rectus and left superior oblique. The fundus findings are negative. Right pupil dilated. Both react to light, direct and consensual and in accommodation. The soft palate is drawn to the right side of the throat. Corneal and pharyngeal reflexes are both diminished. Diagnosis, lethargic type of endemic encephalitis. By evening she was much weaker and had a choking spell and a weak spell (syncope). She could not swallow. A duodenal tube was passed through the nose into the stomach to permit the giving of water.

January 22. During the forenoon there was several syncopal attacks. Cardiac action stopped at about 2:30 p. m., fully five minutes before respiration ceased. Duration of disease from 2½ to 3 days.

Case II. No. 134-976. B. H. Female, aged 42 years. On January 23 patient consulted Dr. M. J. Gilfillan. She stated that on January 21 her eyes hurt her so that she could not read as well as usual. Part of the day she saw double. She had no pain, headache or dizziness, but was very tired and quite constipated.

The next day she was drowsy and could not control her motions as well as usual. She remained in bed nearly all day. There was some drooping of her eyelids. Her face felt numb as though paralyzed. She developed a little trouble in swallowing and talking.

On the 23rd, she could not swallow at all. Speech was quite thick. She could not hold her head up and was more drowsy. She has had no sore throat or cold recently.

Examination: Patient is quite cheerful but dull. Both lids droop. Speech is thick and indistinct. She can answer questions correctly when urged. No strabismus or nystagmus. The diplopia is variable. The most constant finding is paresis of the left internal, inferior and superior recti and the

left inferior oblique. Pupils are equal and react normally. The soft palate is drawn toward the left.

On the 24th she is apparently better.

On the 25th temperature 100°, pulse 102, respiration 18. Much weakness of muscles of the neck. Tongue thick. Ptosis more marked. Muscular movements of arms are not normal.

On the 26th about the same. Had a large bowel movement today following castor oil last night.

On the 27th had several cyanotic spells when respiration ceased temporarily. Tongue very flaccid and would fall back into pharynx. Left pupil dilated. Clear mentally though drowsy and a little irritable.

Died at 3:15 a. m., on the 28th, respiration and pulse failing at about the same time.

Duration of disease from seven to eight days.

Case III. A. G., No. 138-260. Female, aged 24 years.

She told her story later saying that, "Beginning about January 20, I was very tired and weak. I could not walk straight and it was an effort to carry my coat, for my back was so weak. I felt completely exhausted. I stayed on duty four days during which time I thought I would feel better.

"The evening of the fourth day I gave up. My eyes were weak and my eyelids drooped. Water stood in them most all the time. I couldn't stand the sun-light but the electric lights had no bad effect.

"Prior to my illness and afterwards my appetite was poor. My throat became practically paralyzed and it was a great effort to swallow liquids. In chewing food my jaws became very tired.

"I had a very tired and aching feeling in the back of my head, my limbs ached, in fact I ached all over. I was confined to my bed one week. During that time I didn't care to sit up in bed. The second week I was up and down in my room. These two weeks I was in isolation.

"For two days after I was out of my room I had a headache which ceased on taking two aspirin tablets each day. On walking, the muscles in my limbs became very sore and stiff, so that I could not walk without wabbling. This lasted a week.

"I was off duty 2½ weeks, and after going on duty I was given very light work. I haven't as yet fully recovered my strength and I still have some difficulty in eating some foods.

"In speaking I found it to be an effort and my voice is still weak and not natural."

Examination of the extrinsic muscles of eyes showed a paresis of the left inferior oblique. Fundus examination negative.

Case IV. F. S., No. 138-704. Female, aged 20 years. She tells her story as follows:

"On Thursday, January 27, I went to the City Clinic. All the while I was there I felt so exhausted that I came home, went to bed at 7:30, with no supper and missed class. Friday morning I got up, still very tired, but thought I was only lazy and would feel better when up. I went on duty at 7. At 7:45 on duty in the Dispensary as I went from one room to another I could hardly see a thing, especially with my left eye. I could distinguish light from dark. When they talked to me I didn't seem to understand or something. I knew they were talking but couldn't answer. My temperature was 99.4 and pulse 112. I was sent home and put to bed. My left eye and the back of my head ached and I was so tired. At noon when food was brought I felt nauseated. I was never nauseated except at the sight of food. Friday afternoon my back, hips, and legs ached terribly. At the back of my head I could hardly stand having any one touch it. At 6:30 I began to feel worse, my treatment was given me and still the pain grew worse in my head. The pain went through my left eye to the back of my head, left side.

"At about 10 I felt numb, my fingers, toes and arms tingled and I couldn't move them. After a "hypo" for the pain, I rested but did not sleep.

"On Saturday, the 29th of January, my head, eyes, back and hips ached so I could hardly move. My neck seemed stiff but my throat never bothered me.

"Daylight bothered me, I couldn't stand the daylight until the following Tuesday, but could stand every electric light going in my room. I slept most of the time, had no appetite. The pain, aches and being unable to stand daylight gradually left. On Wednesday, the 2nd of February I was released. On Friday I walked over to the Dispensary and when I got there I was so tired I lay down for about 30 minutes. I came home and stayed in bed until Sunday the 6th. My head has ached through my eyes since and I haven't felt as strong as I did before being sick."

Examination of the extrinsic muscles of the eyes showed paresis of the left superior rectus. Fundus examination negative.

Case V. E. B. No. 138-762. Female, aged 27 years. States her experience:

"The first symptom of my recent illness was noticed at home during my vacation over the Christmas and New Year season, that of being dizzy. But it did not last long, perhaps a week or so.

"About the middle of January I began again with dizziness. I went to Dr. Harbaugh, I think, on January 24. She had a blood and urine test made. Temperature was slightly subnormal then, which is uncommon, for me. I was also having a little trouble drinking, especially when stooping at a fountain. About this time I began to notice a little difficulty in swallowing. My throat was not a bit sore nor swollen but felt partially paralyzed. Jaws tired when chewing bread crust or celery or anything tough. I did not notice any double vision at any time and did not feel sick in any way nor tired out, just having had my vacation.

"The night of January 26 (having been on night duty since January 13) I developed a headache. It did not leave me during my sleep the following day until I took an aspirin tablet. But I do not think the headache had any connection with the other symptoms as I occasionally have it, and it did not return. But Dr. Harbaugh had me put to bed in isolation, giving a treatment with heat to the extremities. My eyes had been hurting for several days. I supposed it was from reading a great deal at night. After my headache ceased I felt good except my eyes and difficulty in swallowing and both of them were better so that I was permitted to go on duty after being off two nights. All the while I could not hold my eyes more than about half way open, even when they did not hurt.

"On going on duty I noticed that I was weak, but having light work it was not hard to stay on duty and having no class work I slept well through the day. In a week or so I noticed a queer feeling in the back of the head, but no ache. Could not read or sew for a couple of weeks, then sewing made me very nervous. Joints or muscles seemed so stiff, not sore. Not for about four weeks did I begin to feel natural and my eyes hurt yet with a little use. (Feb. 25)."

Examination showed paresis of the left inferior oblique. Fundus examination negative.

CONCLUSIONS

The clinical picture of botulism should be kept in mind at a tentative diagnosis in

questionable cases. Observers have made various diagnoses, among them poliomyelitis, meningitis, methylic alcohol poisoning and encephalitis.

The large number of cases of endemic encephalitis with such varying symptoms makes the differential diagnosis most important. We have seen cases variously affecting the third, fourth, sixth. seventh, the vestibular nuclei of the eighth, the ninth and the twelfth cranial nerves. Some cases show no fever or respiratory symptoms. Many have early blurring of vision and diplopia. The vestibular nuclei case had marked vertigo and spontaneous nystagmus. Some have had sneezing, yawning or hiccoughing. One case, probably affecting the optic thalmus and the mid-brain in particular, had muscular rigidity with choreiform movements and increased reflexes in the legs. Some cases have somewhat simulated paralysis agitans. With such an array of encephalitis pictures the mistake in diagnosis was made by calling the first case one of the same nature but affecting a slightly different locality in the brain stem.

The fact is that botulism is essentially a toxic encephalitis affecting the nuclei of the pons and medulla and with rapid course, whereas endemic encephalitis is an infectious process affecting, as a rule, the cortex, the meninges or the basal ganglia of the upper cranial nerves and with more deliberate course.

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DISCUSSION

DR. BERNSTEIN: I cannot add anything to this, but it seems to me it is of such great importance it is too bad it will receive only the notice of such a limited audience. I hope it will be presented where it will receive wider discussion.

He said that the boiling or better cooking would destroy the botulism. I did not know this. I thought it resisted cooking.

DR. BEGLE: I also wish to add my appreciation.

DR. COLVER, (Closing): The bacillus is anaerobic and under certain conditions forms spores and the boiling in canning may not affect the spores. These spores can form bacilli, and in time these form the toxin. When the food is taken out of the can and brought to the boiling the toxin is destroyed and therefore it is innocuous so far as the family is concerned; but they may have the bacilli in the intestines. If the stuff is fed to chickens, hogs, etc., they might infect the garden or the manure heap. You can be sure of not dying from botulism if all the food is cooked. You can kill the toxin by cooking the food. That has been proven. The toxin that kills the person is the toxin that is killed by boiling.

Sometimes there is a gas formed in the food, and when it begins to cook it begins to ebulate, and it looks and acts like it is boiling when it is really not doing so.

A MEMBER: You spoke of the case of spinnach. Does it have a peculiar taste?

DR. COLVER: It is described as having a spoiled smell. There are observers who say you could tell every case of botulism infected food by this peculiar smell. In the olive, instead of being firm, it is sort of crumbling, and there is an odor.

THE DIAGNOSIS AND TREATMENT OF CERTAIN DISEASES AND TRAUMATISMS OF THE ESOPHAGUS.

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In order to make this discussion practical it will be limited to certain disease conditions liable to be encountered quite frequently and which have certain diagnostic difficulties having a bearing on treatment. The subject matter is based on experiences in this line of work and the problems are presented about as they appear in practice.

It is timely to say that treatment has not quite kept pace with the immense progress in diagnosis achieved by the aid of the es-

ophagoscope and X-ray. Treatment of the diseases of the esophagus is not a very popular field of venture. Surgical procedures are not standardized, and in the detail of systematic follow up and attempt to get surgical cures this particular art cannot compare with the progress, for instance, in genito-urinary surgery.

I will begin with the group of perverted functional disorders of which esophagismus is the type.

Nervous diseases of this organ are explained in a general way on the anatomic physiologic basis. The oesophagus is the first organ of the vegetative system. The pharyngeal plexus under partial volitional control merges into the nutritional system and that fact has a bearing on the nervous disturbances of this tract. The psychic factor through the sympathetic system often interferes with the normal reflexes. In other words the upper esophagus is a physiologic border line. Mental concentration on the act of food ingestion is naturally a pleasurable occupation and there is nothing that starts a panic quicker than obstructed deglutition, be it caused by a too large bolus or a foreign body. The prima via is guarded by rather touchy sentinels liable to precipitate interference from head quarters which disturbs functional harmony. The region becomes the center of tumultuous impulses, sometimes a choking spasm, or a partial or complete reversal of peristalsis as in emesis. In either case, whether he throw it up or gulp it down the sensory nerves are abused, the muscles are sore and there is a shock. As long as there be the slightest excuse in way, an erosion or a bruised muscle coordination is upset and the psychopathic may concentrate on it until the dysphagia habit is prolonged indefinitely.

Now this, an accidental condition, should not be indiscriminately labeled globus hystericus unless there be some of the definite stigmata of hysteria. It may be called esophagismus induced by a trauma. To be sure it may merge into a truly hysterical condition with paraesthesia, hyper or anaesthesia and persistent spasm with the psychic factor in evidence.

Usually there is a stomach reflex—some kind of dyspepsia with hyperacidity or fermentation. Aerophagia, belching and heartburn are commonly in evidence and they are all manifestations of incomplete reversal or irregular peristalsis.

And right here a word about "bad breath." We usually attribute it to teeth, tonsils or sinuses but there is no doubt but that it is occasionally a stercoraceous odor brought up by reversal of peristalsis.

These are some of the causes of globus hystericus and hysterical dysphagia. Throat stigmata are quite characteristic of hysteria. Anaesthetic areas are most common, hyperaesthesia is frequently in evidence; and paraesthesias—dryness, burning or sensations of foreign substances, etc., all perversions of temperature. tactile and pain sensations, are often described. The real problem of the laryngologist is to study these cases broadly; try and eliminate obvious causes such as are found in mouth, throat and nose disease conditions and at the same time he must take into consideration the disturbing factors operating from below upwards, already mentioned. Regurgitated acidity of the esophagus is probably the most common.

Routine testing of throat reflexes will bring surprises. The patient may not be aware of anaesthesia of the pharynx. It is a characteristic of hysteria that nerves are involved in functional groups in contradistinction to organic nerve diseases involving definite nerve trunks, and strange to say, cases having complete anaesthesia of pharynx as tested by touch may have no disturbance of deglutition.

A discriminating diagnosis suggests the line of treatment. Simple esophagismus due to accidental choking rarely needs more that a calming assurance and careful diet; but occasionally one must go the complete diagnostic routine—fluoroscopy, esophagoscopy, etc., before the perturbed mind will be convinced. Bouginage should not be practised unless one has excluded foreign body.

Globus hystericus should be studied etiologically and, the diagnosis made, a refinement of hygienic regime should be insisted on. The acidity of the esophagus may need attention, which means cure the dyspepsia. Bouginage or the esophagoscopic tube may be indicated but is hardly fair to these psychoneurotics to depend on this kind of treatment alone. We should try and eliminate all causative factors mentioned and make an effort to get complete cure.. If they suffer relapses they drift into the chronic class, hardly a credit to the art. The careless, off-hand treatment of these cases is liable to discredit medicine. They should be followed up to complete cure.

Routine study of throat reflexes in cases presenting any degree of dysphagia will occasionally be rewarded by early detection of

organic nervous diseases primarily manifested in the throat. Tabes and general paralysis may present early anaesthesia of the pharynx and larynx and the cause of the dysphagia is the loss of the primary reflex tion. In such cases the fluoroscopic examination reveals bismuth masses retained in the pyriform spaces, slow peristalsis all the way down, and if the anaesthesia be com- of deglutition simulating a positive obstruc- plete, involving the larynx one may find the bismuth emulsion in the bronchi. This emphasizes the fact that from the standpoint of neurology the prima via is well worth a very careful diagnostic survey.

Cardio spasm may be classified as primarily a nervous functional disorder. Some times it persists with remissions without producing a pathologic lesion but usually there develops a degree of dilatation and angulation at the hiatal orifice and then we have a very formidable disease condition. There may be an anatomical defect; too much of an angle at the diaphragmatic level, a weakness in the wall of the esophagus or a pressure kink from the edge of the liver acting through the diaphragm.

Casually observed in the early stage such cases may be labeled globus hysteric, but more often in the late stages they are considered to have organic stricture. Some are allowed to die as cases of malignancy. The early symptoms are regurgitation with sensations of more or less pain and pressure. They become morbid and depressed, lose weight rapidly and in time develop a cachexia quite like that of malignancy.

Dilatation may be the result of some anatomical weakness as stated, or it may be due to the cultivated habit of suppressing regurgitation—holding part of a meal in the esophagus from one meal time to another. The capacity of the dilated esophagus may be equal to one pint or more. The dilatation is usually an irregular spindle shape, often sagging to the right, like a pouch, below the hiatal orifice. Even in cases many years afflicted there is no organic stricture —no fibrous tissue nor over-developed constrictors. The angulation is the worst feature of the fully developed dilatation. This condition makes ordinary bouginage impossible and dangerous. The histories of a few cases will cover the important points.

Hysterical dipphagia. A woman of fifty presents symptoms like cardiospasm, which have persisted for years. It probably began as a globus. She regurgitates part of every meal and for six months has rarely swallowed water, has lost all desire for it. Loss of weight, 40 pounds. The fluoroscopic picture shows the lower half of the esophagus in spasm, the bismuth churning up and down in waves of reverse peristalsis. There is no dilatation as yet. A small olive was passed for diagnostic purpose, on the thread guide, five yards of which seemed well anchored in the bowel. She swallowed better. A day later she regurfiitated the string saturated with bile—a rather suggestive evidence that reverse peristalsis is a real factor explaining in this case the cause of the esophageal spasm. She describes a wave of distress from hypochondrium up to the throat.

It would be dangerous to attempt full dilatation in this case on account of liability of rupturing the esophagus. A few moderate dilatations produced a change. She swallowed liquids well, developed a desire for water and at the same time complained that solids would not go down easily. These psychic vagaries are characteristic. It should be mentioned that atropine seemed to check the spasmodic conditions, a confirmation of the diagnosis of vagotony. She improved daily for two weeks, but she is still under observation.

Case II. Cardiospasm. A farmer of about 40, sound and vigorous up to a period of about five years before his first visit, told the usual story of a gradually progressive inability to swallow food. Sometimes he could flush it through with copious draughts of liquids but the regurgitations increased year by year until he could hold a whole meal overnight and regurgitate it unchanged in the morning. He was emaciated and feeble. The fluoroscope showed a sacculation holding more than a pint.

By way of diagnosis the cardiac orifice was dilated by a large olive on the thread guide and he was temporarily so much relieved that he did not return for the full dilatation. Some months later he developed pneumonia, the epidemic influenza type, and an abscess formed in the lower right lobe. High temperature and starvation for several weeks reduced him to a mere skeleton and he seemed in quite hopeless condition. But he came to the hospital with the thread well anchored in the lower bowel, and a large olive was easily passed. Under forced feeding he improved rapidly, cleared up the pulmonary condition and recovered. But he has not had the radical treatment and will quite surely relapse.

This case illustrates the efficacy of the thread guide method as perfected by Plummer of the Mayo Clinic. A rapid moderate dilatation was all that this patient could endure. Blind bouginage is always dangerous and rarely succeeds in cases having dilatation. The esophagoscopic method, working in a sac full of mucus and debris is less reliable than the thread guide method—and far more cumbersome. One must aspirate and then hunt for the hiatal orifice and then dilate with a complicated instrument, a rather formidable procedure for a patient in extremis.

Case III. Cardiospasm. A woman of 35, of rather extraordinary physique and general good health, developed appendicitis which was duly operated. It seems that adhesions formed which evidently upset normal peristalsis and she suffered from local pains and colic. Later there were symptoms like pylorospasm, but she retained fairly good vigor until there developed typical cardiospasm with the usual decline. I saw her first during the fifth year. Loss of weight, 30 pounds.

She had acquired the faculty of checking regurgitation and had a moderate degree of dilatation, nearly a pint in capacity. After a few diagnostic dilatations, (using the thread guide,) to get measurements, she was given one maximum stretching by means of the Plummer silk bag and water pressure up to 30 feet, equal to about 14 pounds. It

caused very severe pain and there followed the usual stomach colic. But within an hour she swallowed a full meal. She regained 20 pounds in about three months and has had no recurrence of regurgitation.

This case is interesting as an example of reverse reflexes. Her own description of symptoms followed the spasmodic peristalsis from below upward—a wave of distress from right hypochondrisum up toward the throat—with aerophagia and belching ad nauseam. She was a hypochondriac with a reason. A recent letter, now a year after treatment reports perfect health.

Case IV. A farmer of about 50 had symptoms of cardiospasm over a period of three or four years. Regurgitation was intermittent—that is, he would occasionally, without nausea, eject the previous meal.

Fluoroscopic and later esophagoscopic examination showed a sac holding more than a pint—evidence that the disease had existed for a longer time than the regurgitation indicated. He was water starved as nothing had passed through for four days. Aspiration through the esophagoscope brought back about all that he had recently tried to swallow—more than a pint of water, egg-nog, milk, etc. It was not possible to get the string guide through nor was it safe to attempt dilatation on account of the active inflammation and the consultation decided on gastrostomy as the man was almost in collapse.

The local operation was performed by Dr. Jacobson, without shock and he was filled up on fluids for two weeks. The esophagus was cleared of debris of accumulated foods and the inflammatory conditions subsided to the degree that the hiatal orifice could be located and the bougie passed. There was no stricture resistance and as the dilatation shrunk, it was practical to pass the large sound without guide. He improved for several months and finally the gastrostomy opening was allowed to close.

The cardiospasm persisted and the bougie had to be passed daily. He gradually lost ground and died in acute general spasm, convulsions which seemed to start with violent abdominal contractions. The autopsy showed a dilated esophagus, no neoplasm, no organic stricture; endocarditis and a splenic lesion. The cardiospasm and starvation incident thereto lead to a fatal exhaustion.

A few words about instrumentation are in order. Cardiospasm with dilatation is not cured by ordinary bouginage. Many are made worse and hopelessly chronic by the stomach tube and even large bougies passed frequently to temporarily relieve symptoms. The tissues of the diaphragmatic portion of the dilated esophagus may be so flabby that it is risky or impossible to pass a large bougie or olive without guide into the stomach.

The diagnosis having been confirmed by all methods of examination full stretching is indicated. The average sized adult will stand about one atmosphere, hydrostatic pressure.

This seems a practical method and more safe than mechanical dilators in which the orifice is stretched up to a certain calibre with no definite gauge of the force used—to say nothing of the simplicity of the technique as compared with passing the complicated instrument through the esophagoscopic tube. It would seem more important to regulate the stretching by gauge of pressure than size. The control of the water pressure is perfect, the escape being regulated by the tube held between thumb and finger and with practice one can almost sense the process and degree of stretching. The pain varies but is a factor in deciding the water pressure advisable.

Retropharyngeal abcess in children occasionally burrows so low that it can cause extreme dysphagia as well as dyspnoea. The difficulty lies in the inaccessibility and low palpation and incision guided by the finger must be depended on. One rarely sees such cases where the esophagoscope is available—but the Jackson spatula is adapted to this work. There may be considerable difficulty in diagnosis in neglected cases but usually one can get at the sequence of symptoms—a primary throat infection, adenitis involving post cervical glands, stiff neck, low grade fever and later dysphagia and dyspnoea.

Good drainage is difficult in the low down abscesses, frequent probing necessary and often the dyspnoea persists, suggesting that the mediastinal glands are involved and are compressing the bronchi.

Peri-esophageal abscess is not very common and I have never had an opportunity to make diagnosis by the esophagoscope. Two cases draining into the esophagus have been seen—one of chronic type suggesting a broken down tuberculous gland with intermittent flow of pus over a period of months, the other recovered after two or three spontaneous evacuations. Both had spells of obstruction followed by regurgitation of pus.

Acute inflammatory conditions of the esophagus may be secondary to any of the acute throat infections ranging from simple esophagitis to Vincent's Angina.

I will mention one condition which may simulate foreign body obstruction. There is a form of myositis involving the esophagus which is rarely mentioned. The muscle lameness, burning sensations of mucosa like rheumatism of the throat may come on so suddenly as to suggest a foreign body. I have examined by esophagoscope and observed the red oedematous mucosa—and of course aggravated the symptoms thereby. No food, enteroclysis for a few days and large doses of salicyllates per rectum have promptly relieved the symptoms—a therapeutic diagnosis to be sure—but a

considerable experience with this type of esophageal disorder confirms the diagnosis.

Lye stricture is the next subject. Caustic potash and soda products find their way into many homes and there is no law regulating caution labels in the general trade. The druggist has to use the poison label for caustics but the trade can even go to the other extreme, for example, "Guaranteed not to contain acid or other corrosive." If my experience is any indication of the number of such victims the total must be considerable. I have four or five cases constantly under treatment. The 64th Congress started legislation to regulate this matter but the Commitee, Drs. Jackson, Arrowsmith and Hubbard, having this in charge, Section, A. M. A., have been informed that "all bills have been destroyed" and the difficulty is to get it started again.

One important question to be discussed is the early treatment. The region involved depends on method of ingestion. Most common is the liquid form—mistaken for tea. Next is powder form—mistaken for sugar or picked up off the floor by the baby. As sugar, it may be put in tea or coffee or spread on bread or as sweetening for tomatoes—careless or overworked mothers give all kinds of opportunities for such accidents. One rarely has the chance to use the antidote, a mild acid, but nature usually attends to that and thereby saves the stomach from harm—emesis saves many from a fatal lesion. I have seen three cases of fatal corrosion of the stomach and one adult who has a much damaged stomach.

The early treatment should be the same as for an acute esophagitis. It is difficult to decide when to begin bouginage. If too early one is liable to strip off the macerated mucosa and the softened muscle wall would yield very readily. On the other hand if one waits until there is sloughing and impaction of the damaged mucous layer there is liable to be sudden complete closure for a considerable period. Some children can be induced to swallow the thread and once that is in place, anchored in the bowel, treatment is comparatively easy. The trouble is that the case rarely presents for curative treatment until the stage of fibrous constriction is well advanced, and starvation in evidence. The Sippy wire guide started properly through the esophagoscope is quite safe and reliable as a guide for olives. In multiple strictures with some degree of sacculation between, one has to trust to the sense of touch and be very cautious, the wall being softened and thinned out. I have experienced one accidental perforation of the pleural cavity. This baby was in extremis, had only a few hours to live and I was over confident of getting a tube into the stomach. It went very easily into the pleural cavity. Autopsy a few hours later showed that the whole pleura covering the lower third of the esophagus was covered with a plastic lymph and the esophageal wall was sloughing out. The child was too far gone for gastrostomy—in fact, I mention this experience to bring out the fact that some cases are hopeless and any surgical effort is liable to hasten death. That picture of three inches of corroded esophagus ready to slough into the pleural cavity impresses the hazard of instrumentation in the esophagus in corrosive destruction. If possible one should first get the thread guide anchored in the intestines.

As stated, the Sippy wire with olives on the cable is a very satisfactory method of gradual dilatation. One has to be very patient and advance the size methodically and the intervals must be adapted to the conditions. It seems to me a process of maintaining a fair lumen until all inflammatory products are absorbed and the esophagus relined. There comes a time after one has worked along for months when it seems that the last cicatrix has given way and then the fibre bougie at longer intervals suffices.

I will mention in detail one case. An adult chemist who swallowed about half an ounce of concentrated sodium hydrate. Fortunately emesis was prompt and saved the stomach. The lower half of the esophagus was deeply corroded. I waited too long for acute symptoms to subside before getting the thread down. Rather suddenly the whole mucosa sloughed and impacted at the cardia. After a few days of starvation gastrostomy was resorted to. Two weeks later retrograde and direct bouginage was successful. Under the fluoroscope the ends of the bougies could be seen to pass each other at 10 in. from incisors. A year of systematic dilatation gave a perfect result.

Foreign bodies cause injuries to the esophagus which may result in extensive destruction. Pieces of impacted bone with more or less tissue attached are the most dangerous. Decomposition accelerates the sloughing of the mucosa and muscle fibres and the swelling makes extraction very difficult. Cases of this type having pain, swelling and fever tax the skill of surgery to the limit. The esophagus is very easily lacerated and abscesses burrow toward the

mediastinum.

The first step in removal of an impacted foreign body of the nature described is to make effort to dislodge the impacted point. This can be done by the hook shield which is passed below the fragment and drawn upward in such a way that the point is disengaged and the softened tissue protected. Then traction can be made with forceps with reasonable safety. This method applies likewise to large coins long impacted and also to open safety pins. The use of hooks in extraction is a very useful procedure and the shield hook is quite safe. Some impacted foreign bodies cannot be grasped with the forceps and others cannot be extracted by direct traction. The shield hook will release the buried point or edge and this also prevents laceration. These hooks are useful to accomplish turning as in the case of the safety pin—for instance having hooked the shield of the open safety pin, it can be turned on the point without extra stretching of the tube. All this implies that measurements on the plate have been taken, that is if the distance from the shield to the point equals the length of the pin then there is no extra danger in turning. If the pin be a large one then the shield hook must be used to cover the point as it is drawn upward. In my safety pin cases I find six in children under 10 months of age all extracted by the hook and partial turning method—and in only one was there any evidence of trauma. This child, seven months of age had a swollen neck for a few days due to the fact that the manipulation was made difficult and prolonged by the breaking off of the shield. I never had the courage to push an open safety pin down into the stomach (Jackson's method) and then extract it reversed—and really it seems to me an unnecessary hazard.

The treatment of lacerations should be mentioned. I usually give sterile liquids and bismuth. In adults I have used guaiacol in oil, 33⅓%, as an antiseptic and for relief of pain.

The fluoroscopic study is usually decisive even though the body be diaphanous, the checking or retarding of the flow of the bismuth or the ribbon like stream viewed laterally quite definitely locates a flat body .And also we have the fluoroscopic control method of operating.

This is a very brief testimonial to the X-ray but I take it for granted that we all appreciate the immense importance of Roentgenology as a factor in precise esophageal surgery.

DISCUSSION

P. M. HICKEY, Detroit: I wish to compliment Dr. Hubbard on his presentation of the subject, which was somewhat different than usually presented. It is not gathered either from the old or new literature. I always enjoy hearing papers by men who have done things themselves.

In regard to the use of the X-ray in the diagnosis of diseases of the esophagus, it seems to me the remark he made in the early part of his paper that there had not been much improvement in the treatment, called to my mind a case about 20 years ago. I was called to see a case where a man was supposed to have a peach stone in his esophagus, and the large bouge was passed down but he said he still felt the peach stone. Then the silk worm dilator was introduced and opened and pulled up and brought out several inches of mucous membrane and he had to have the esophagus dilated for several years afterwards. That is changed now with our methods of direct inspection and the aid of the X-ray. Every patient before attempting the introduction of the esophagoscope should have a careful examination of the chest so if there is an aneurism there you will know it and carefully consider the risk. They should be fluoroscoped in every position.

With regard to the use of bismuth for locating foreign bodies I object to that, possibly because in some cases it musses up the field. There are cases where it is possibly a good procedure, but if it does not show an object that will throw a shadow I think it is best to go ahead with the direct examination and look for the foreign body. We make a plate as a matter of routine. In the diagnosis of the foreign body the lateral plate is very useful. With improved technique we get better plates than formerly, and it is necessary to study these shadows very carefully. I saw one case at the hospital and I did not pay much attention to a little shadow, and it turned out to be a piece of bone which was afterwards removed.

I call to mind a case of chicken bone broken from the sternum of the chicken and lying crosswise, and the symptoms were referred to the gall bladder. The physician who brought her in was in doubt as to which it was, and in introducing the esophagoscope we found this thin, sharp bone.

With a malignant growth you will not have a complete closure of the esophagus, but will find that the bismuth will trickle through. In the diagnosis of malignant growth in the esophagus, a very thick solution of bismuth will be found efficacious. An ordinary thin solution will get by, whereas a thick mixture allowed to go through slowly will pick up irregularities where a thinner will not.

As to removal of foreign bodies under fluoroscopic control, that is at times a selected procedure which I would not advocate to the exclusion of direct esophagoscopic observation.

With regard to safety pins which children swallow, I push them into the stomach and let them alone. They will all pass. I have had six cases of open safety pins in children which have been pushed directly into the stomach or allowed to go there. (Illustrates at board). I remember one case where I was a little slow with the forceps and watched this thing go down and we could see no scratch there. And in these cases if the pin goes into the stomach I do not think you really should worry about it, because it is my observation, born out by Roentgenologists that it will not shut down on the point but that it will go through and be passed in time. One case we watched for three weeks, and six weeks afterwards telephoned that the pin had passed. That was the end of the case. With an open safety pin in the stomach you need not worry.

I was glad to hear the doctor speak in praise of the Plummer bag in connection with cardiospasm. The treatment by the passing of a bougee is little used and is dangerous and does not cure the patient. We get a good sizable dilatation with the bag and you have all symptoms relieved.

The case of perforation of the esophagus reminds me of a case seen years ago with Dr. Shurley. That was before the string method, and we tried to pass a bougie. A perforation of the lateral pharngeal wall took place and there was a fatal termination.

In one case of stricture which bothered us a good deal we were unable to get the string through. We tried to get the girl of 14 to swallow the string, but we were always able to pull it out the next day. In that case gastromy was done and then we passed the bougie and picked it up with the esophagoscope and attached the string and pulled it up through and had that for a guide and got quite a good dilatation. The patient got tired of the manipulations and came back in six months with exacerbation of the symptoms.

DR. HUBBARD, (closing discussion): I did not intend to say there had not been great progress made in this line of work, but I do think that in treatment of diseases of the esophagus we should systematize, standardize and keep better records and follow up these cases more consistently.

COMMUNITY CLINICS AND PUBLIC HEALTH

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Professor C. E. A. Winslow of Yale has given the following definition of public health: "Public health is the science and art of preventing disease, prolonging life, and promoting health and efficiency through organized community efforts for sanitation, the control of infection, the education of the individual in the principles of personal hygiene, the organization of the medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health." This is a very broad definition and admits of a broad interpretation as to the kind of social machinery it will require to insure every individual the maintenance of good health.

Public health has concerned itself in the past largely with the control of infectious diseases; public sanitation; control of the food and water supply; housing and living conditions including school and industrial sanitation; the general education of the public, etc. Our efforts in the past have been of such a nature that the results would benefit groups rather than individuals. For example: The improvement of a public water supply benefits the whole community rather than individuals. We have been concerned largely with community health rather than personal health.

We have assumed until recently that the responsibilities of public health should not concern itself with the personal health of individuals. Gradually, however, we are beginning to make exception to this rule. For example: Many communities are conducting tuberculosis clinics for the purpose of discovering early tuberculosis in individuals and consequently begin early treatment. Some are conducting infant feeding clinics, to teach mothers correct feeding methods. Venereal disease clinics are becoming more common as well as dental clinics, school clinics, etc. All these efforts are concerning themselves with the individuals more and more.

I wish to quote a few sentences from the report of Sir George Newman, chief medical officer of the Ministry of Health of England. He says: "Preventive medicine must not be understood to consist only of external sanitation."—"Preventive medicine to be effective must deal with the man, the whole man, as an individual as well as a member of the community"—"Whole groups of disease are neglected as far as prevention is concerned, for prevention has been too exclusively concerned with certain infectious diseases, and much disease is allowed to go by default, untended and untreated."—"The first line of defense is a healthy, well-nourished and resistant human body."

Preventive medicine must concern itself with the personal health of the people and more particularly the children, if we hope to develop a healthy and strong adult population.

I wish to bring to your attention a few facts as to the physical condition of our child population and also cite one or two principle causes of death as it affects children. I believe that the biggest opportunity for preventive medicine lies in this field.

The number of stillbirths is alarming. One in every 25 children born in Michigan is born dead. Much of this could be prevented if every expectant mother could be educated and given proper care during the period of pregnancy. This should be made part of the public health activities through prenatal clinics.

The death rate in babies under one year is also appalling. The average death rate in Michigan is about 93 per 1,000 births. Much of this no doubt can be ascribed to ignorance in correct feeding and clothing habits and general care of the baby. Public health can reach the well baby through infant feeding clinics.

Again children of pre-school age and school age have all kinds of defects that

are neglected. I again quote Sir George Newman, who puts these facts in clear language and they apply equally well to our own state. "The majority of the children of school age, are in most respects, healthy. That is the fundamental fact. Nevertheless, the actual findings and experience of a decennium and the medical examination of 15,000,000 children show that the physical impairment of these children is somewhat wide in distribution and serious in effect upon adolescense and adult life. Malnutrition, anaemia, defective vision or hearing, dental caries, and disease of special organs are either too prevalent or insufficiently remedied, with the result that a foundation is being laid for enfeeblement or subsequent disease." Of the children in attendance at school he says: "Upwards of 10 per cent of the whole are at a disadvantage on account of uncleanliness, and that 10 per cent also are malnourished. Then we come to disease. Perhaps the largest contributor is dental caries, which handicaps children almost as seriously as it does adolescents and adults. Not less than half the children are in need of dental treatment and a substantial number (not less than one-half a million) are urgently so. Again, upwards of one-half a million children are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Next we must add diseases of the ear, throat and lymphatic glands, another quarter of a million in a relatively seriuos condition. Then there come the skin diseases, disorders of the heart, infectious diseases, and tuberculosis. Many of these children suffer from more than one disability, but a moderate computation yields not less than a million children of school age as being physically or mentally defective or diseased as to be unable to derive reasonable benefit from the ordinary form of education which the state provides."

The conditions found are somewhat the same as in children in our own country. From 75 to 90 per cent of our school children go entirely without any dental care. From 20 to 30 per cent have diseased tonsils and adenoids and about 10 to 20 per cent have defective vision. These are the outstanding things. Many other conditions are found as set forth in Newman's report.

It has become a well known fact that nearly one-third of our young men were rejected for military service because of physical defects of all kinds. We have a right to assume that these defects are there because they were not corrected in childhood and consequently laid the foundation for subsequent disease or impairment that may be permanent. Valvular heart disease is a good illustration of permanent impairment which often follows focal infections in tonsils and teeth. The focal infections can easily be removed; but it is impossible to correct the valvular lesion. It is extremely important to correct these little things in childhood, if we want a healthy race. Medical and dental clinics in every community is, I believe, the best method through which this can be done.

Tuberculosis clinics have demonstrated what relation they hold to the control of tuberculosis. These clinics have brought thousands of individuals in contact with a physician who otherwise would not be reached. The Framingham demonstration has clearly shown what can be accomplished by the community in tuberculosis control. The clinic is the central hub around which all the other work revolves.

In a similar way numerous other diseases can be controlled and will be controlled through community clinics. These clinics will not replace or interfere with private practice but rather supplement it. Tuberculosis clinics have never interfered with private practice. Neither will any other class of clinics.

The supervision of the general and personal health of school children should be one of the most important functions of public health agencies. This supervision should not be confined to the usual type of school inspection such as detecting contagious diseases, skin infections and the like and the general sanitation of school; but it should also include a careful physical examination of every child for the purpose of detecting minor and major physical defects and diseased conditions that may have an influence on their personal health.

The health of children cannot be maintained by dealing only with infectious diseases and by general educational work in the schools. Health is a personal matter with each child and each one must be studied and treated according to its individual needs. The general health conditions as pertains to a school or home may be perfect and yet the personal health of the children very bad. Personal health is what counts in the end. Environment no doubt has much to do with personal health. But environment is perhaps a comparatively small factor. If the personal health of children is bad in all probability there is something else wrong besides environment. It is well

to look to the children themselves. It may be a contagious disease or it may be improper feeding, infected teeth, tonsils or adenoids, or some other thing.

Education plays a very important part in developing good health. But education won't do it all. It won't clean up infected mouths, correct vision, stop tooth aches and the like. It requires corrective work by dentists and physicians to overcome these.

There must be a happy combination of educational work, general health supervision as pertains to school sanitation, controlling infectious diseases and also the supervision and direction of the personal health of each child in the schools if we hope to build up a healthy school population. That does not mean that the health agencies must treat every child that needs treatment. It means that every child should receive periodic examinations and the necessary treatment directed through private physicians and dentists and other agencies in the community prepared to do this work.

The city of Flint is making a determined effort to supervise the general and personal health of the school children. through a cooperative plan between the Board of Education and the Health Department. A brief description of this work may be of interest.

The general school inspection and physical education is in charge of eight school nurses and four instructors in physical education. These are all employed by the Board of Education and the work directed by the Superintendent of Schools and the Superintendent of School Nurses.

The Health Department employs one school physician and five full time dentists and 10 visiting nurses, who co-operate with the school nurses in vaccination work, in conducting the physical examination, etc., and in doing the necessary corrective work for all those children who are unable to obtain help through private sources. During the course of the school year we aim to give every child in the grades a physical examination. This consists of measuring and weighing each child and giving them an examination of the eyes, ears, nose and throat, teeth, heart, general deformities, evidence of malnutrition, etc. The work is done at the school building by the school physician and a dentist and school nurse. The apparently subnormal children who require a more thorough examination are referred to the Health Center or the private physician as the case may demand. Records are made of each case and the card filed in the class room. Notes are sent home by the nurses with the children advising parents of conditions found and every effort is made through follow-up work to persuade them to have these defects corrected.

The health department maintains clinics at the Health Center where nurses can refer children for treatment or examination as the case may demand. Three dental chairs are maintained at the Health Center and three chairs in school buildings. The latter are located in the outlying districts and means less loss of time for children from the class room.

It is estimated that more than four thousand children will receive dental care during the present school year. It is the aim of the dentists to remove and prevent mouth infection. This is accomplished by cleaning the teeth and filling those in need of it with amalgam, cement or enamel fillings, laying special stress upon the care of the small pit and fissure defects and the removal of infected teeth and roots.

The other physical corrections by the school physician and through the voluntary services by local practicing physicians consists of removal of tonsils and adenoids, refracting eyes and fitting glasses, treating skin diseases, correction of orthopedic deformities, chest and heart examinations and referring children to the open air school and open air rooms, directing of a dietary for children and such other treatment as each child may require. It is estimated that more than four thousand children will pass through the health center for examination and treatment other than for dental care during the present school year.

I do not want to convey the idea that all our clinics are conducted for the benefit of school children. The tuberculosis, venereal disease, prenatal, gynecological, nervous and mental diseases and drug addict clinics are necessarily almost entirely for adults. These are conducted by local physicians. The routine work such as writing of histories, filing of records, preparation of patients, etc., is done by the nurses in charge. In this way we are assured of more regularity and promptness in carrying out all the necessary details.

Occasionally I hear the opinion expressed that this school work will interfere with the work of dentists in private practice. Dentists in our city are doing more work for school children at the present time than they have ever done before. The records of the

school nurses show a marked increase in this respect. They are also becoming more interested in this branch of dentistry. If we give free dental care to our children and can preserve their teeth until adult life, we have made them ardent advocates for proper dental care. Free dental care among school children increases the work for private dentists.

This applies equally well to physical care along other lines. I can think of no better way in which to increase the work of the private physician than by doing free medical work among our school children. However, I do not want to leave the impression that we do other corrective work free for all school children. We try to direct them to their physician or to the clinic as each case may demand.

The personal health of the school children is a public health problem and community Medical and Dental clinics furnish the social machinery with which to supervise it. Private medical and dental practice can never supervise it as it is organized today. This is not a criticism of private practice. They cannot enter that field of activity. The criticism should rather be directed towards public health agencies which fail to undertake this work. This field of activity offers the best opportunity for effective work in prolonging and saving of human life and promises the brightest hopes for building up a strong and healthy race.

DISCUSSION

DR. C. C. SLEMONS, (Grand Rapids): I just want to add my experience while we are on this subject, in line with what Dr. Kiefer and Dr. De Kleine have said; and I want to go on record to this extent: Don't attempt laboratory diagnoses when you have symptoms of membranous croup. Hundreds of children lose their lives every year in Michigan by doctors attempting to culture throats that give symptoms of membranous croup. I don't believe in it. I don't think we should even attempt it, but give your antitoxin, and give it at once, absolutely in every case of membranous croup; don't attempt to rely upon laboratory evidence—not even for quarantine purposes, and certainly not for treatment.

DR. DAVID LITTLEJOHN, (Ishpeming): Mr. chairman, ladies and gentlemen: The subject which we have listened to from Dr. De Kleine is one of extreme importance; it is one of extreme importance not only to the individual, from the public health standpoint, but one just as important to the general profession. We are hearing a great deal at the present time in regard to the question of community centers, health centers, as being opposed in a large measure by the medical profession; but, just as has been said by Dr. De Kleine, this opposition comes largely from a misunderstanding. With co-operation between the health departments and the local practicing physicians, I think everyone (where the community or health centers have been established for the carrying on of clinics) will agree that the physicians in these places wouldn't wish them discontinued under any circumstances, because they find that where these have been carried on properly, under proper supervision, their practice has increased, rather than decreased.

With a tuberculosis clinic, for instance, there is bound to be a certain amount of education carried along with it. There is a considerable amount of publicity attaching to the carrying on of these clinics; the result is you will find most of the physicians will have an increased amount of physical examinations to make. That has been true, I know, in our own particular place. People who have had no idea of having physical examinations made, have heard of other people going to the clinic for examination. There the educational factor enters in, and they have gone to their own physician and submitted themselves for physical examination. An illustration serving to show that the clinics benefit the local practitioner.

The same is true in the case of child welfare clinics. Parents will take their children to their own family physician when they have been advised, and when they know that emphasis is being placed on the proper care of children, either in early age, or during the school period.

So the misunderstanding which has arisen is one which is easily corrected, wherever the clinic is being conducted. I do think, however, that one thing which Dr. De Kleine mentioned hit the nail right on the head, and that is, one cause of trouble has arisen from the fact that in some instances clinics have been conducted by outside agencies, not under the supervision of the health department. Now, I think we could probably cite some examples where that is true, and I know that there are some here today who can bear me out in the truth of what I state at the present time: That these private agencies are doing the work with the best of intensions, but their intentions are misdirected; they are carried on through the agency, probably, of some special individual—practicing physician. The other physicians immediately realize that where clinics are conducted in that manner, the benefits which will result from education will accrue largely to the individual who is conducting the clinic. That, I think, is absolutely true. It stands to reason that the practicing physician conducting a clinic of such a character, being dependent upon his private practice for his entire livelihood, would not, under ordinary circumstances, be liable to recommend them to go to somebody else to receive the proper care. While it is possible they may do so under certain circumstances, a certain amount of feeling must exist, and does exist among the other physicians in that particular community; and where it is so, under these circumstances, we shall find dissatisfaction; we shall find the best results are not obtained.

The effect of the community clinics on public health, I think, is largely educative. We are installing in the various clinics which are being organized throughout the different parts of the state, centers from which information emanates in all directions, and as this information is given out to the different individuals who come in contact with the clinic, it is carried away and distributed in turn to other ndividuals with whom they come in contact. In a very large degree, you will find that a great majority of our clinic cases are brought in as a result of others having first attended; and it is through this personal educative process that much of the good results come from the clinics.

Just as Dr. De Kleine stated, the clinics are not necessarily for treatment purposes. They are for purposes of examination and diagnosis. The proper use of the public health clinic should be to determine the condition, and refer that patient to the particular physician who is usually in charge of the family. If the family is one which requires clinical treatment, and does not have a private family physician, or cannot afford a family physician, then the question of treatments can be considered afterwards; but the function, to my mind, of the public health clinic, is not for curative purposes, but for diagnostic purposes, in order to determine and find out those cases which do exist,

in which treatment is required, and to recommend that the case be turned over to the care of the private family physician.

You might be interested in the manner in which I handle such a situation. When I make an examination at one of the clinics, and I find a case requiring treatment, I simply make out a duplicate copy of the record card, find out the name of the physician who is taking care of the family, and send it to him, advising the patient to go and see him. I don't undertake any treatment whatever in any of these cases. It is simply for diagnosis that the clinic is conducted.

Summing it all up, the value of these community clinics, from the public health standpoint, can hardly be overestimated, because it is one of the most important factors that we have, in finding life, either from the pre-natal, clear up to adolesout the disabilities which exist from all periods of cence, and advising in regard to the proper care and proper source from which they should seek curative treatment.

Now, we all know these conditions are extremely common throughout all periods of human activity, from early life up to old age, and it is the function of the health department to ferret out these conditions, if they have not been found previously, and to advise in regard to the proper method of having the cases properly taken care of.

The old idea that the duty of the health officer was to simply quarantine infectious cases is obsolete, and a remnant of the past ages. The function of the health officer, and the health department, should be the building up of public health in the community, rather than simply the isolation of cases already existent. It is in the care of these cases, such as come to us in the clinic, that we can get a great deal of benefit to the community—by the proper handling of them in the proper way. As I have said, I think one of the great causes of misunderstanding which has arisen between the practicing physicians and the health department, has been a question of the management of the clinics. I don't think there is any health advocate, anybody who advocates the use of community clinics, or health centers, who for a moment would in any way interfere with the ordinary practicing physician. What they want is co-operation with the physicians, rather than to antagonize, and I know that the paper we have just heard from Dr. DeKleine has emphasized all these facts, and I don't know that there is very much more I could say in regard to it. I know we have all appreciated Dr. De Kleine's paper, and I thank you. (Applause).

DR. J. A. HUMPHREY, (Lansing): We have a health clinic, too, at Lansing. Our trouble, more than anything else, is not so much the advertisement of it, but to keep it down. Lansing is magnificent, and provides us with a wonderful health center, and a wonderful program. Our health center has grown so much it is almost impossible for us to take care of the needs. At the present time we are running about five hundred cases a month, which is more than the two of us can really do. Our problem, therefore, is more to take care of a few cases properly, than to advertise.

Of course, we still have the trouble of convincing the powers that be, that money should be provided for public health. However, Dr. De Kleine is fortunately situated, and his aldermen have supplied him with money enough to run there very nicely; but I think the cities where this work has been started are going to have the same trouble as we did. However, I have inaugurated a system this year; I have asked each alderman, alone, to visit our clinic. We get them in there alone and show them what we are doing, and after a while they begin to see it; but don't get them up there in a body, because if you do, they will talk about how they are going to be elected next year. I think if you get them alone, you will do more good.

NOTES AND OBSERVATIONS ON THE ADVANCEMENT, DIAGNOSIS AND TREATMENT OF VENEREAL DISEASE IN THE BRITISH ARMY

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EXPLANATORY

The following notes were written during spare moments while in Ireland and afterwards in London in that "Room of Silence," the library of the Royal Academy of Medicine, while doing post graduate work with Mr. Sequeira at the London hospital. I am reading these notes at the suggestion of a friend who thought that they might be of interest to some of the profession.

INTRODUCTION

After observing the Venereal situation since 1914, I became interested in reviewing the prevalence of these diseases since the European Epidemic in 1494-5. It has been proved that Syphilis was brought into Europe by Columbus and his followers upon their return from the New World. There are no definite figures in regard to the extent of this epidemic, but from authoritative sources we can estimate its magnitude at that time. For instance, this disease incapacitated large numbers of the army of Charles VIII during his campaign in Italy. As was the custom, he had a large number of women followers and these women had been in contact with some of the men back from America, who were suffering from syphilis. These women spread the infection among the men of his army and they in turn infected the Italian women and because of this it was called the French Disease in Italy for many years.

Adventurers from all parts of Europe were the main portion of the army of Charles VIII. These men who were suffering with the disease brought it home with them and we see how the first big epidemic of syphilis was caused by war. As we go through the various reports of Commissions on Venereal Diseases since that time we see how each succeeding war has caused new epidemics of venereal disease, namely, the constant wars betwen Louis XII and Ferdinand and later the wars of Francis I with Charles V of England which accelerated the spread of venereal disease. Then the army of Crom-

well which invaded Scotland infected both the civilian women and nurses of the Lowlands.

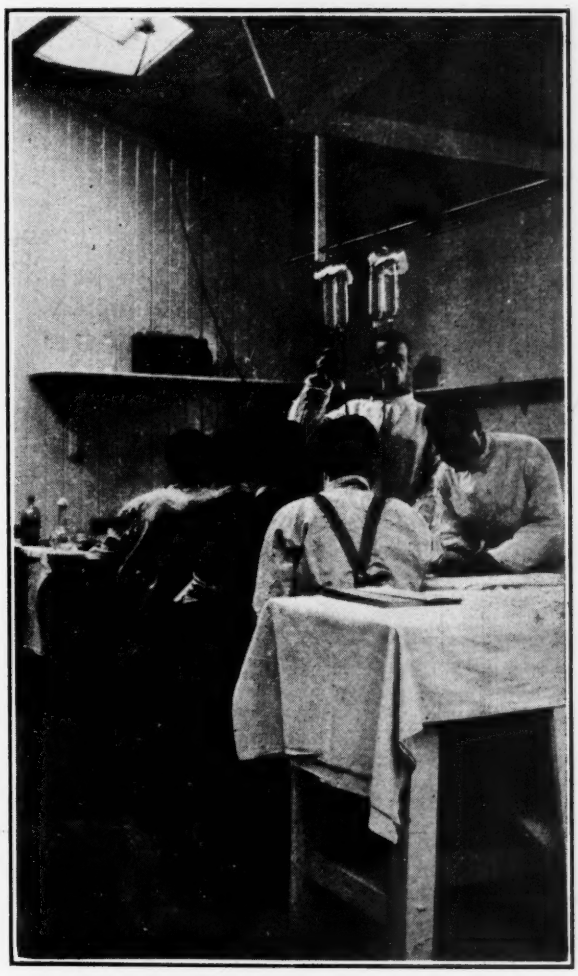
From the description of the symptoms of this disease at that time it seems to have been very malignant; perhaps due to the lack of resistance and immunity of the person infected. We know that the symptoms of any new disease are very severe during the first epidemic, as shown by our experiences recently with the Spanish Influenza. Col. C. H. Melville, in his "History and Epidemiology of Syphilis in the More Important Armies," states, that the men of the army seemed to suffer more severely than did the natives where the disease was contracted. Williaume speaks of this virulence by quoting from a report made by the Surgeon to the Duke of Alba during the wars between Spain and Portugal in 1579 and 1580, i. e. "Venereal infection assumed such malignant forms that he and his assistant amputated upwards of 5,000 penii." During the Anglo-Portuguese period of encampment in Madrid, in 1706, the women of Spain "did their bit" by infecting 6,000 men with venereal disease. Two hundred years later a paper was read before the Medico-Chirurgical Society of London, June 9, 1812, written by Inspector General Ferguson of the Portuguese Army in which he tells of "the most melancholy of all mutilations" suffered by the British soldiers during that time was the incident of venereal disease, which was greater "than the registers of all the hospitals in England could produce in the last century." The number of admissions in Regimental Hospitals from December 21, 1811 to June 20, 1814 was 176,067. Out of that number 4,912 were admitted for syphilis, or one case of syphilis for every 36 cases suffering from other diseases.

To offset the terrible effects of the epidemics described above, it is most interesting to note that the 20th Regiment of the British Army in North America in December, 1777, only reported two cases of venereal disease. The same regiment reported 48 cases for 1778 and, for the period 1776 to 1783 inclusive, during the American War of Independence, there only occurred "dropping cases."

To briefly show the fluctuation of the number of admissions for venereal disease in the British Army during the various campaigns and periods of peace, I have selected figures at different times from the statistical table in Vol. VI of Power's and Murphy's, "A System of Syphilis," which are as follows:

	Year	Strength	Total Admissions	Admissions Per 1,000
Syphilis	1817	24,440	1,068	43.7 %
Soft Chancre	1823	24,702	231	9.4 %
and Gonorrhoea	1866	48,060	2,882	60.0 %
on	1860	198,732	62,893	316.05%
Active Service	1868	168,149	39,836	237.09%
	1873	167,862	11,922	71.38%
Same diseases	1880	159,622	18,869	117.92%
in England	1886	188,739	23,928	179.37%
and abroad	1900	226,276	11,674	51.66%
	1908	215,467	4,139	19.19%

The variation in the above table can be explained in the following manner: During the periods of peace, inactivity and proximity to civilization, venereal disease was more prevalent. The same holds true for the incidence of venereal disease for other armies, the United States included. The exception is Germany, as the discipline in the latter army is more strict because military service is compulsory. In the armies of the United States and Great Britain the service has been by voluntary enlistment. Keeping these facts in mind, it was not unreasonable to expect in the war of 1914 an epidemic of venereal disease far surpassing any other in history. It is easy to see why this should be so when we think that



Treatment Room, Syphilis Division, Military Hospital, Queenstown, Ireland.

in France and extending along the Western Front we had present an Allied army composed of men from every corner of the globe; many, thousands of miles from home. An army of such a size and such a cosmopolitan one, was never known to assemble in, (comparatively speaking) so small a space. An epidemic did occur and Britain by her experience in former wars began actively to combat the disease in her armies. In this work Col. L. W. Harrison, D. S. O., R. A. M. C., was the leading light in instituting suitable methods for treatment, in organizing the venereal lines in No. 39 General Hospital, B. E. F., France, and later in establishing the venereal centers in the British Isles.

It is still early for authentic statistics with reference to the incidence of venereal diseases during the present war but enough information is at hand to know that wonderful progress has been made in preventing, diagnosising and treating this terrible disease of man.

METHOD OF EXAMINATION OF VENEREAL CASES

(a) The Venereal Disease Case Card as used in British Military Hospitals is very complete and compact.

(Front of Card)

.....Hospital .....Ward

Age Service Religion Disease

....

Regiment Coy. Reg. No. Rank Name

....

Date of Admission Disposal Date of Discharge

....

Summary

1st, 2nd, 3rd attack or relapse Date and places.....
of three last.....
exposures .....

Main points in history—
Condition on admission—

(Back of Card)

Date	Treatment Local	Treatment General	Progress	Complications and their treatment

The size of the above card is 7x5 inches

It will be seen how the above card saves time and labor and also gives easy access for the purpose of obtaining statistics.

(b) Examination of Patients Suffering from Syphilis and Venereal Sores—It is not necessary to explain the uses of the upper part of the card other than that the history of previous venereal infection and places of exposure were carefully noted. The routine examination is on the following lines:

1. Description of sore or scar on genitals.
2. Glandular enlargement, general and local.
3. Skin and mucous membrane lesions, including anus, feet, hands and mouth.
4. Old scars, their history. All cases giving former history of syphilis were questioned with a view to cerebral symptoms and examined for nervous lesions, such as reflexes, test words, etc.

The back of the card is self explanatory. Under "progress" we inserted the results of dark-ground examination, blood test (Wassermann) and Cerebro-spinal Fluid examination. The latter was examined as follows:

1. Cell count.
2. Globulin.
3. Wassermann (in dilutions of 0.2, 0.5 and 1.0.)

Great care must be taken in making dark-ground examination for the Spirochaeta Pallida and too much cannot be said about its importance. It is common knowledge these days that an early diagnosis and treatment is absolutely necessary to secure good results. It is absolutely criminal for a doctor to give a patient an antiseptic for a sore before he has made several dark-ground examinations. As I used to hear Mr. C. H. Mills say so many times, we should recognize that in syphilis we have a forerunner of what is to follow, while in most other systemic diseases we are ignorant of its presence until the actual general symptoms of the disease have presented themselves. In making the film for dark-ground examination care and pains should be taken to procure the serum from the depth and at the edges, which show induration of the sore. The more superficially the film is taken the greater are the chances of missing the spirochaeta pallida and of getting mixed forms of spirochaetes, which often confuse the diagnosis. Failing to obtain pallida from the sore a puncture of an enlarged inguinal gland is a simple operation and very typical forms of s. pallida are obtained in this way.

The simplest technique for puncturing an inguinal gland for dark-ground is as follows: Select a spot on the skin an inch from the gland you wish to puncture, sterilize with iodine and then with a hypodermic syringe containing seven or eight minims of normal saline, pierce the skin with the needle and thread the gland on to it by holding the gland with the left thumb and forefinger and the syringe with the right hand. A way of ascertaining whether the needle is in the gland is by moving the latter sideways and if the operation has been successful the syringe will move in the opposite direction from that of the gland. Now that the needle is in the gland ,inject the saline and

massage the gland well for a few moments to make an emulsion of its contents before withdrawing the fluid. Remove the syringe and nedle and express its contents on several cover-slips and examine with the dark-ground illumination.

In the Army we often had men presenting themselves with a positive Wassermann. In some of these cases the only lesion suggestive of lues would be a placque of induration under a healed scar or previous ulceration on the penis, which upon palpation gave a feeling of a large coat button under the skin. When we desired to take the serum from this induration to substantiate the diagnosis of syphilis we used to pick up the placque of induration at its base with the thumb and forefinger of the left hand and, holding a Gillette razor blade with the right thumb and ferefinger (grasping the latter firmly to prevent its slipping) make a quick perpendicular downward incision to the base of the scar. By grasping the surrounding tissue hemorrhage could be controlled and only serum used on the slide. Quite typical forms of s. pallida could be obtained in this way. This operation is without pain.

It is routine practice in all Venereal Military Hospitals to observe all soft sores daily for s. pallida and skin lesions. From the experience of many thousands of soft sores Col. Harrison and Mr. Mills of Rochester Row, London, came to the conclusion that such patients should be kept under observation for eight weeks by weekly Wassermanns and by daily dark-ground examinations until the sore was healed, eight weeks being the maximum incubation period of s. pallida, in their observations. I always keep in mind that it is always possible (when someone reports a greater period of incubation) for the patient to have had sexual intercourse while under observation after the sore was healed. I can quite safely say that between 70 and 80 per cent of soft sores develop into chancre. Multiplicity of lesions does not exclude syphilis. I saw a case with Col. Harrison that had over one hundred chancres. This patient was a soldier and suffered from scabies.

The Wassermann modification used in all Military Hospitals of the British Army was after Harrison. We were always cautioned about the clinical interpretation of this valuable reaction. The reports were read from two dilutions. While one should not become a slave to the Wassermann, its value and accuracy is quite firmly established. However, it would not do to condemn a man with only a positive blood test and no clinical evidence of the disease. Col. Harrison so often said there was chance of error from the time the blood was taken from the patient to the time the Pathologist put the report on paper. In all cases of doubtful diagnosis we always looked well for congenital evidence and kept in mind that very often a meatal chancre is missed and a chancre of the tonsil or any part of the buccal cavity is often wrongly diagnosed. I consider every chronic ulceration of the buccal mucous membrane specific until I prove to myself that it is otherwise. It is advisable to keep in mind the possibility of malaria, trench fever or any tropical disease giving a positive Wassermann reaction.

However, I remember Private P. No. 60322, a case suffering from soft sores, under my care, who had given a repeated negative Wassermann reaction. One evening he developed rigors and ran a high temperature and presented a typical picture of malaria. I took blood smears which later demonstrated the tertian form of the malaria parasite, and at the same time blood for the Wassermann, which was most carefully done, and was found to be negative. He never had a positive blood while a patient in the Military Hospital, Spike Island, Queenstown, Ireland.

As we know, for some time after the discovery of the Wassermann, it was thought that treatment of any kind might render a positive blood negative. Now we know that one injection of any arsenical preparation tends to make a negative or weakly positive reaction strongly positive. Because the spirochaeta pallida seeking the perivascular tissues is "ferreted out" of his haunts, so to speak, by the "606" injection and the Wassermann substance is set free into the blood stream. The test was given the name of the provocative test and is useful in a latent Syphilitic.

Patients suffering from balanitis, herpes on the penis, Molluscum contagiosum, venereal warts, scabetic lesions on the glands and shafts of the penis were carefully examined and observed.

(c) Examination of Patients Suffering from Urethral Discharge. The cases with urethral discharge were described on the Venereal Disease Case-Card and using a rubber stamp, as shown below, for checking the information desired.

	R. .....
Discharge	Epid. L. .....
Noted .....days.	
Anterior Wash.	Prost. (R. Lobe.....
No. 1.....	(L. " .....
Urine No. 2.....	Arth. .....
Smear	
Comp. Dev.	

A simple and effective way to take a urethral smear is described by the Medical

Research Committee, which is to wash the meatus and surround area with alcohol, afterwards using a platimum wire to get the discharge from the fossa-navicularis. This method is simple and is valuable because one is less liable to get the mixed bacteria which are present around the glans penis.

However, a few words on the complement deviation or fixation treat for gonorrhea may put a new light on this much discussed test. As we all know, this test was first described by H. J. Schwartz, M. D., and Archibald McNeil, M. D., of Cornell University school. Since then there have been modifications of the original method, almost as numerous as the different ways for doing the Wassermann test. From a clinician's point of view it is useless to do this test on a case of acute gonorrhea until the third week. In chronic cases it gives an index to the patient's resistance and progress under treatment. The Thomson's modification of the above test is, in my experience, the best. He has a specially prepared antigen which in my association with him during his research two years ago on this antigen is as authentic as the Wassermann, because we were in a position to observe its reaction clinically in a large series of cases.

TREATMENT OF VENEREAL DISEASES IN THE BRITISH MILITARY HOSPITALS

(a) TREATMENT OF CHANCROID.

The treatment of this type of venereal disease is the most important of all. It is important because it is the only venereal disease where a mistaken diagnosis causes so much harm to the patient's after life. It should be common knowledge today that it is more than possible for the primary sore of syphilis to be multiple. In consequence of this Col. Harrison laid especial stress on the systems of diagnosis and treatment of soft sores. When a patient appeared for examination with an ulcer on his penis he was examined in the following way: Clinical signs of syphilis, i. e. glands, mucous membrane lesions, etc., a dark-field examination of the serum from the sore, and a Wassermann in spite of a recent history by the patient. For the first few days saline dressings alone were applied so as not to hinder the dark-field result. However, it was necessary to find a remedy which would not kill the s. pallida and at the same time would promote healing. After several experiments Dr. C. H. Mills found that powdered sulphur did the trick —in all cases it cleared up the discharge. As soon as the discharge from the sore disappeared an estrigent lotion was used to promote the growth of epithelium. There is nothing further new in the treatment of chancroids. I can say from many disappointing experiences that some types of this disease are very difficult to heal and at one time or another I believe I have used every drug in the pharmacopeia with the hope that one of them would heal the sore. There was one preparation which I most frequently referred to when in trouble and that was Intramine, a preparation made by McDonough of London. He first prepared this drug for the treatment of syphilis, but it was soon found to be useless. It contains a synthetic preparation of arsenic and sulphur, so with it one had the two-fold value of a stimulant and toxin neutralizer at the same treatment. A patient with chancroid was kept under observation for eight weeks by weekly Wassermanns and clinical evidence for syphilis.

Balanitis was treated by irrigations of normal saline and later, when it was quite certain that the patient did not also have a chancre, an irrigation of 1-5000 solution of bichloride of mercury was used.

Scabies of the shaft and glans of penis was treated with sulphur ointment.

Herpes of this region was treated by a boric acid dusting powder.

Molluscum contagiosum by incision and expulsion of the molluscum body and application of tr. iodine.

Venereal warts were removed by tying off the larger ones and later applying some caustic (either thermo or chemical) to the smaller ones. The best way to prevent a recurrence of this condition, after any irritating discharge has been cured, is to perform a circumcision.

Para-Phimosis—In all cases where it was evident that there was an acute infection present, a dorsal slit was performed immediately. The method used by us was the V-shaped incision with the apex toward the base of the penis. Many times such a condition as described above hid a chancre which was only diagnosed after several dark fields of suspicious areas. This operation was done with one-half of one per cent novocaine, taking care to block the area high above the place of infection.

Bubo, which is a common complication of soft chancre, was treated with the greatest care. Several methods were advocated from complete enucleation of the infected gland to making an incision across its surface similar to the old treatment for boils. In our experience the latter method produced a new complication which was more difficult to cure than the original disease. Consequently, we aspirated all cases of suppurating inguinal adenitis with great suc-

cess. The method is quite simple and is as follows:

No fomentations were applied and just as soon as we were certain there was pus present, a needle, with a large bore and containing several openings at the end to prevent clogging, was introduced in the healthy skin and the point was carried along subcutaneously until we perforated the gland. The contents of the gland were drawn off by producing a vacuum, either with a syringe or by such a method as is used to draw fluid from a chest. It was necessary to perform this operation upon several consecutive days but it always prevented the bursting of the Bubo and usually meant a cure in two or three weeks. The point of entrance of the needle in the skin was sealed off with collodion after each aspiration to prevent secondary infection. To prevent a sinus forming a fresh site was chosen each time an aspiration was necessary. The whole groin was daily bathed with alcohol and a dusting powder was used several times a day to prevent softening of the skin. It also prevented pyodermic conditions.

Patients often presented themselves with chronic sore throats and a very common cause for this condition and one that ran in epidemics was Vincent's Angina. The clinical feature of Vincent's Angina is an angry ulceration which gives very little discomfort to the patient and often the only objective symptom to the patient is a stiffness in the throat when trying to swallow. A diagnosis is easily verified by the dark-field, which shows the fusiform bacillus and spirillum of Vincent. Frequent applications of the following preparation, which is called Mill's Paint, was, in our hands, almost specific.

Rx.
Liq. Arsenicalis .....1 part
Ipecac .....2 parts
Rect. Spirits .....3 parts
Sig. Apply three or four times daily.

(b) TREATMENT OF SYPHILIS

In the treatment of Syphilis, a thing which is so often overlooked is the local treatment of the chancre. Before a penile chancre was treated at all the diagnosis was made or confirmed by the dark-ground illumination. As soon as the latter was established calomel powder was first applied, then if the location of the chancre was favorable for operation it was either dissected out or a circumcision was performed. This was the ideal method because it removed without doubt "the source of infection." However, this procedure was not always possible and where a chancre was inaccessible to operation active local application of suitable therapy was immediately started. It was found that freezing the chancre with Carbon monoxide snow and afterwards injecting the base and indurated edges with Hectine (a synthetic Arsenical preparation made by the French) using a hypodermic syringe for the purpose, produced excellent results with no injury to the surrounding healthy tissue, with the exception of producing a slight local hyperaemia. The penis is then dressed and bandaged in such a way that when the patient is sitting or standing the penis is held adjacent to the abdominal wall. The latter "tip" prevents pain and swelling of the prepuce. Hectine comes in small sterile ampoules containing about one cubic centimetre of fluid which is drawn up in a hypodermic syringe and, using a small needle, is injected as described above.

The general treatment of syphilis is perhaps more romantic than that of any disease and the progress in recent years, especially since the war, has been most beneficial. Mercury has long been considered specific for the treatment of syphilis but the extensive salivation with necrosis of the gums and alveolar processes which follow the intensive use of this valuable drug, which was used as a means of producing a cure in the old days, is now hideous and non-professional. Since the discovery in 1905 by Schaudim of the spirochaeta pallida there has been marked progress in the treatment of this disease. When Ehrlich (1909) after many experiments with arsenical preparations discovered "606" a new era in the treatment of syphilis was opened. When speaking below of "606" I do not necessarily mean the original Salvarsan, but as signifying all preparations of that series such as Arsenobillon (English), Arsenoenzole (Billon) (French), Kharsivan (English), Diarsenol (Canadian) and when speaking of "914" the series of NeoSalvarsan such as Novarsenobillon (English), Novarsenobenzol (Billon) (French), NeoKharsivan (English), Disodo-Luargol and Calyl. Discussion arose all over the world as to the value and safety of "606" in administration and many had the false idea that one or two injections would cure syphilis. Numerous courses of treatment were suggested—some clinicians after an unfair trial of "606" dropped back into treatment by mercury alone. It was soon found that a combination of mercury and "606" was the best course. By the kindness of Brevet Col. L. W. Harrison, D. S. O., R. A. M. C., I have had access to the different courses used at

the Briitsh Military Hospital, Rochester Row, London, England. It was of interest to see how gradually more "606" was used in the routine courses for early cases. At first one injection of "606" was given, followed by six injections of mercurial cream, each injection of the latter containing one gram of metallic mercury, then another "606".

When Col. Harrison went to France in the latter part of January, 1915, he immediately saw the importance of using more "606" because intensive treatment of synthetic arsenical preparations was found to be more efficacious in healing up secondary or tertiary lesions. Under the old course there was delay in the healing of the primary chancre, secondary and tertiary lesions which meant vast numbers of venereal cases being sent back to England, which was rather a serious matter when every man possible was wanted at the front. The course of treatment which he found most valuable at this time was as follows:

8 injections of 0.3 grams "606" and
8 injections in the buttock of mercurial cream.

Owing to the shortage of material, however, this was cut down to 6 injections of 0.3 grams "606" and the same number of injections of mercury. This course has been continued to the present time with slight variation, due to increased supplies of arsenical preparations and experience with the complications following intolerance on the part of the patient to the drug, which I will mention below. The point which I wish to make now is the reduction of the cases invalided home, with the result of sending back to the front in six or seven weeks' time men fit for full duty and absolutely free from spreading the disease.

The statistical table made up at No. 39 General Hospital, B. E. F., France, showing the number of cases invalided to England from France is as follows:

VENEREAL DISEASES INVALIDED TO ENGLAND

	Jan.	Feb.	Mar.	Apr.	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.
1915	671	254	55	45	39	30	35	20	18	25	35	26
1916	18	17	18	3	9	12	14	7	7	6	6	10
1917	4	7	3	1	2	1	7	10	4	7	8	8
1918	3	4	2	9	2	6	3	7		7	5	

The possibility of putting a man in fit condition so soon was a marked victory over the old treatment. Under the old method when mercurial treatment alone was used a medical officer would hesitate to pronounce a man fit for military duty under one year of treatment. The earliest time claimed when spirochaeta pallida is not found in the chancre when mercury is used alone, is three to four days. An injection of any form of the arsenical preparations, with the exception of Galyl, will render it impossible to detect spirochaeta pallida in the chancre after 12 to 18 hours.

To demonstrate the routine treatment in an ordinary case of secondary syphilis, I will copy the following order:

Routine course for ordinary fresh cases of syphilis, (to be interrupted in the event of dermatitis, jaundice or other signs of intolerance supervening. Each patient to be carefully scrutinized for signs of stomatitis or general malaise, his weight to be taken, and urine tested for albumin before each injection.

Day of treatment	Intravenously	Intramuscularly	Intraveneously	Intra- or muscularly
	"606"	"914"	"914"	Mercurial Cream
1st	0.3	0.45	0.45	grain 1
4th	...	....	....	.....
8th	0.3	0.45	0.45	grain 1
12th	...	....	....	.....
15th	0.3	0.45	0.6	grain 1
18th	...	....	....	.....
22nd	...	....	....	grain 1
25th	...	....	....	.....
29th	0.4	0.6	0.6	grain 1
33rd	...	....	....	.....
36th	0.4	0.6	0.6	grain 1
40th	...	....	....	.....
43rd	...	....	....	.....
46th	...	....	....	.....
50th	0.4	0.6	0.6	grain 1
53rd	...	....	....	.....
57th	0.5	0.75	0.6	grain 1
Blood Test—If positive or doubtful, continue 14 days Potassium Iodine, then "Follow on Course" (F. O. C.) of				
82nd	0.3	0.45	0.6	.....
86th	...	....	....	.....
89th	...	....	....	.....
92nd	0.4	0.6	0.6	.....

If blood is negative after the first course, suspend treatment and if practicable repeat blood tests at intervals of three months for one year and six months for the following year. Tertiary cases with symptoms should usually be treated as shown above from the first to the 36th day, and then, if practicable, put on chronic mercurial and iodine treatment. The above lines of treatment do not apply to that of syphilis of the central nervous system, cases of which should be treated on individual lines. The principle in such cases is to commence very cautiously, increasing the individual dose gradually to 0.3 gram and prolonging the course until the patient has received, if necessary, a total of 4.5 grams. After the eighth injection of mercury, two months must elapse before mercury is given again.

When we first began to organize the special Military Hospital at Spike Island, Queenstown, Ireland, it was difficult to procure any large quantity of distilled water, which could be relied upon, for the administration of "606." Consequently, I used the following "914" course and by using a 10 c. c. record syringe where only a small quantity of distilled water was necessary, I found that the course produced just as good results as the ordinary routine "606"

course. It has been learned that any one of the "914" series is secreted from the bowels and kidneys so quickly that it is not considered good treatment to give it by intravenous method alone.

The preparation and examination of the patient before antisyphilitic treatment was thorough and painstaking. Before beginning teratment the urine was examined for albumen, casts, etc. He was questioned as to his previous health, whether he was a "bleeder" or not. His heart was examined and if his teeth were in a bad condition he was sent to the dentist who kept him under treatment while he was receiving his injection of mercury. This latter precaution saved much trouble and prevented salivation to a larger extent. I had a standing order posted in various place swith "hints" for the patients under treatment. These were as follows:

1. Brush teeth after each meal.
2. Wash mouth out (with the alum mouth wash found in each ward) several times a day.
3. Report any symptom which you notice out of the ordinary to the medical officer.
4. Keep your bowels well opened and take "opening medicine" the night before the day of your "606" injection.
5. Do not eat any dinner the day of treatment.
6. Try to smoke only 10 cigarettes a day, as smoking to excess will cause your gums to be sore.

Each patient was seen every other day and examined stripped to the waist and in this way any early sign of intolerance was immediately spotted. The urine was examined before each injection and at intervals the patient's weight was taken and noted. The patient's gums were examined before each mercurial injection.

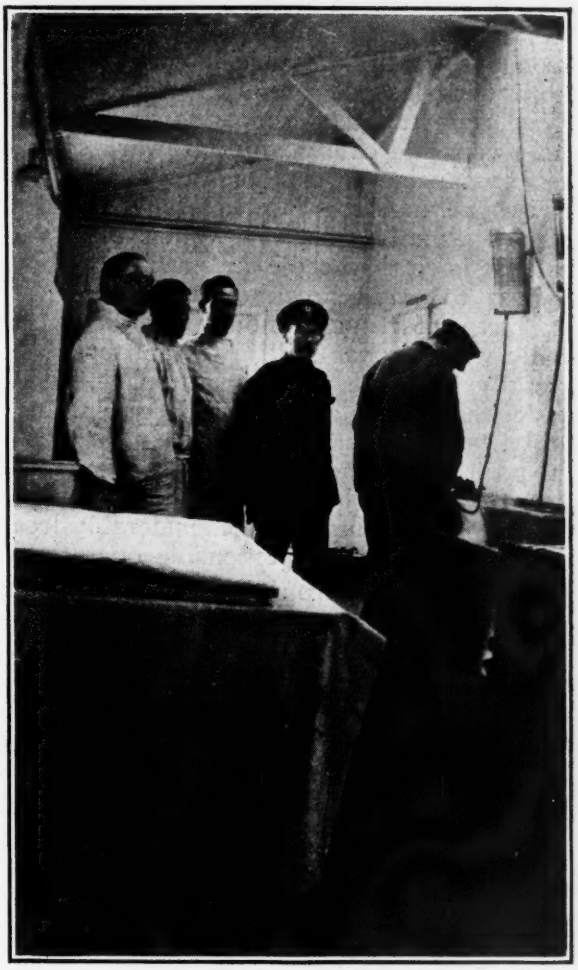
Course of Treatment at Military Hospital, Spike Island, Queenstown

	Intravenously	Intramuscularly	Calomel Cream—10 minims containing ½ grain mercury, intramuscularly
1st week	0.45 gm.	....	X minims
2nd "	....	0.45 gm.	X "
3rd "	0.45 gm.	....	X "
4th "	rest	....	X "
5th "	0.6 gm.	0.45 gm.	X "
6th "	....	0.45 gm.	X "
7th "	0.6 gm.	....	X "
8th "	....	0.6 gm.	X "

In cases where a doubtful positive Wassermann was found a follow up course of one dose of 0.45 gm. injected intramuscularly to two doses injected intravenously of 0.6 gm. of "914" was used.

The media used for the "914" when giving it intramuscularly, was a preparation of creasote and camphor (formula 4631 B. W. & Co., melting at 150 c.) in oil made by Burroughs and Welcome of London, and was found about as satisfactory as any other media tried.

Salvarsanised serum was also used at the Military Hospital, Rochester Row, London and was prepared in the following manner: Ordinary human serum was used and into one cubic centimetre was dissolved three decigrams of any of the "914" series—this was heated at a temperature of 27° c. for one half hour and then heated again for one hour at 57°c. It was then injected into the buttock when cooled. Mr. C. H. Mills found it very successful because practically no pain or stiffness of the gluteal muscles



Chancre and Chancroid Treatment Room, Military Hospital, Queenstown, Ireland.

occurred and after a large series of cases has been tried he will, no doubt, report his results. I did not see during my association with Mr. Mills one case of an abcess forming at the site of injection when the latter method was used.

The site most commonly used for intramuscular injections was as follows: We selected a point two inches below the top of the iliac crest, i. e. a point on the extension of the mid-axillary line, for the first injection and the same point on the opposite hip for the second injection. When other injections were given, a point where there was plenty of muscular tissue, either anterior or posterior to the site described above was selected, alternating for subsequent ones as before. In subjects that have poor muscular development, one can take

the first site as a starting point and find a suitable location between the point of junction of the iliac crest and mid-axiliary line and great trocanter for the intramuscular injection. This area is more free from nerve endings and blood vessels. It might be just as well to mention that the needle must always be introduced alone because it can be ascertained whether it has penetrated a small blood vessel, also because it can be introduced with less discomfort to the patient. If one unfortunately injects some mercury into a vein and causes any untoward symptoms by causing an embolus in the coronary artery or lung, the injection of adrenalin chloride usually relieves. When injecting the dose keep the needle and syringe in one position to avoid breaking the needle. If we were unfortunate enough to break a needle while it was still in the buttock, we carefully kept the patient stationary, or if we desired him on a table we picked him up bodily, taking pains to keep him in the original position. When once a patient moves after the needle has been broken off the chances of removing it are considerably less without, of course, an extensive operation.

Cases suffering from late cerebrospinal syphilis were in most cases treated by intrathecal injections of Salvarsinised serum, starting with two milligrammes of the "914" series dissolved in the serum as described under intramuscular injections. It is not safe to give more than one injection every three weeks. Between these injections the patient was given the iodides and mercury by mouth. We had rather good results with this method of treatment at the Military Hospital, Rochester Row, London, but I am not prepared to say that it is the best way to administer "914" intrathecally. The treatment of early Cerebro-Spinal Syphilis was carried on by the "Dribbling course," which is one injection intravenously of "914" (0.3gm.) or 0.3 gm. "606" and four days later 0.3 gm. "914" intramuscularly or 0.3 gm. "606" intravenously and repeating these injections every four days, finishing the course at the end of 36 days. It was necessary to keep very close observation on patients under this course, observing closely for any sign of intolerance. During the rest periods large doses of potassium iodide were given.

Mr. C. H. Mills used the serum as described above as a medium for sub-conjunctival injections of "914" in the treatment of interstitial keratitis with good results.

TREATMENT OF GONORRHOEA

The drugs used for the treatment of gonorrhoea are much the same wherever one goes and like the treatment of tuberculosis new methods come and go. There was not a great deal of difference in the British army method in the treatment of Gonorrhoea from what one sees in any venereal disease hosptial. The exception in the army where there is discipline is that one has greater oppotrunity to see that the treatment is carried out in the proper way and at regular hours and in this way the patient has less complications and is more sure to enjoy future good health. Many things were tried such as sodium bicarbonate irrigations. a solution of 40 grains to the ounce, which was used largely with success in the New Zealand army. We know the gonococcus grows and thrives in an acid media, so, theoretically, the above treatment should be ideal and possess the added advantage of being very soothing to the inflamed mucous membrane. Flavine in one-half percent solution irrigations was used at the Early Treatment Department of Rochester Row and was claimed to render the pus sterile in two to three days. However, no definite results have been published as to whether it is more efficacious than the orthodox treatment of 1 in 10,000 and 1 in 5,000 potassium permanganate irrigations which has been found by long experience to be the most beneficial. I am not going into detail about the treatment of chronic gonorrhoea, as all the other methods such as bougies, sounds, prostatic massage, etc., carried on in the British Army can be found described in any text-book. However, I must say that Thomson's detoxicated vaccine has opened a new era in the treatment of gonorrhoea. This observer has spent a great deal of time growing and experimenting on the gonococcus. In his experiments he reasoned that it was the non-toxic substance contained in the germ that produced the antibodies to the gonococcus and that it was the toxic part which caused the reactions when the ordinary vaccine was given. Consequently he began trying to discover how to neutralize this toxin and at the same time not to chemically change the non-toxic substance which really increased the patient's immunity. After two years of research this was accomplished. At first he experimented on animals and found that much larger doses or numbers of units could be given without causing any general reaction. Since that time the vaccine has been used as routine treatment at the Military Hospital, Rochester Row, London, and at the present time success is reported by both Lees and Thomson and very soon some very important results will be published. I, personally, used the detoxicated vaccine with good results

but up to now I am not prepared to say anything definite as to its ability to permanently cure all cases of gonorrhoea. The following course is recommended by David Lees.

1st	day	2500	million	units
3rd	"	2500	"	"
6th	"	5000	"	"
9th	"	5000	"	"
12th	"	7500	"	"
15th	"	7500	"	"
18th	"	10000	"	"
Total.....		40000	"	" in 18 days.

This course causes no reactions but I would advise that one should go a little bit easier on the dosage, especially in women. The urethral discharge on all the cases reported by Mr. Lees was stopped inside of 18 days.

It was advised by David Thomson to follow all cases on this vaccine treatment with the complement fixation test as it was found that it indicated the progress of the patient's ability to produce antibodies to the gonococcus. This was done by weekly increasing the dilutions of the complement used in the test. All cases showed a marked rise in their power of resistance; going as high as eight or ten plus. As David Thomson says, when this test is again negative it gives us a means to ascertain positively that the patient is free from gonococcal infection, a very important and satisfying thing when a question of marriage is at stake.

If the success, which now seems absolute, of the detoxicated vaccine continues, it will prove a wonderful weapon in the anti-gonorrhoeal treatment in women. The latter cases are, as every one knows, the most unsatisfactory of all diseases to cure.

The method, however, which is in vogue at most venereal stations to indicate whether a patient is cured and fit for discharge from hospital is by showing two negative reports on a smear from the urethra, taken the first thing in the morning before the patient has passed urine. This was always preceded by the passing of sounds and massaging the prostate two days before each smear was taken. I think that all will agree that this way of testing is first class and as nearly perfect as is practicable in most cases. In all cases, where there was a persistent gleet in the morning, a urethroscopic examination was advised, taking especial note whether all follicles were free from inflammation and that there were no pockets of puss in congenital false passages, etc. In chronic cases with a stricture the gradual method of dilatation with sounds was used in all Military Hospitals.

I spent nine months as assistant to the Genito-urinary Specialists of the Aldershot Command, England, and we did hundreds of cystoscopic examinations, ureteric catherizations for the diagnosis of renal function and the passing of opaque bougies for X-ray diagnosis, but there is notihng new of any great interest to report from this experience.

EARLY OR PROPHYLACTIC TREATMENT OF VENEREAL DISEASE

Since venereal disease was known some form of early treatment has been used. Even the Jews before Christ made it a religious ceremony to perform circumcisions on all their people. This has proven to have been practicable because it is impossible for them to get balanitis. However, I have seen them suffer from other forms of venereal disease. It was Dr. Canton, who, during the reign of Charles II, invented the "Condon" French Letter or French Safe, as it is known in America. Sir Wm. Forsythe, a British surgeon, on the other hand, was the first medical man who offered a medical form of prophylaxis for venereal disease. He advocated the application of inunctions of mercurial cream to the genitals before coitus, but well massaged.

I think that the Anglo-American race have been rather slow in recommending a routine treatment to prevent venereal infection, because we are a great deal like the ostrich and think by burying our heads to the necessary evil of promiscuous cohabitation, the disease will take care of itself. The French and Germans were the first to make early treatment compulsory. Each soldier in the above armies is issued a packet containing 33 per cent calomel cream and some form of a silver salt for the prevention of gonorrhoea. The Colonials (Canada, New Zealand and Australia) were the first of the British Army to compel its men to take precautions against this terrible infection. Col. L. W. Harrison worked very hard to accomplish the early treatment in the Imperial Army, but it was not until 1917 that he really did succeed. At first the men were issued tubes of calomel ointment, etc., and later medical officers were appointed to visit each camp and lecture on venereal disease and its prevention. This was followd by each camp having an early treatment room with an orderly in attendance for 24 hours. The maintaining of an early treatment room, however, was purely arbitrary, so some places were conducted better than others. Today and the last six months of the war a routine method of early treatment was advocated by the War Office. Col. Harrison has done a great deal in pushing the movement of having early treatment centers for the civilian population in the British Isles.

The Australians issued a tube of 33 per cent calomel cream and at first a tube of argyrol 10 per cent, but they found that the latter soon deteriorated, so like a film for a kodak the date before which the ointment must be used was printed on each packet. They afterwards put the argyrol in solution in a bottle. The Canadians and New Zealanders had much the same method.

The Cenral Hospital, Litchfield, England, found that out of 1.292 cases of venereal disease only 5.41% had used prophylaxis. On the whole early treatment has proved very satisfactory and in the Canadian Army where it is well carried out they report that out of 5,000 men who are stationed in London there are only two to three cases of all venereal diseases reported each week.

I think that the success of the Canadians is due largely to the personal appeal that is made to the men, as they are posted in the London District, for their co-operation to report to the Prophylactic Station before and after intercourse. I was fortunate one day in being present in the Senior Medical Officer's office, at an interview between my friend Capt. McKie, C. A. M. C., and two non-commissioned officers who had just reported for duty in the London District. It was explained to them that they were in a large city where temptation met them at every step and they were cautioned that seven out of every ten girls in the streets were infected with venereal disease. If, on the other hand, they did desire to stay with one of these girls they were asked to report themselves before going out with the girl for the application of calomel ointment. They were also told that they must immediately, after intercourse, wash off the penis and scrotum well with soap and water and to again apply the ointment which was furnished them in a tube and to report as soon as possible back to the Prophylactic Station for antiseptic injection into the urethra. In this way each was impressed with the sincere effort on the part of the army to help him and he in turn did his part by reporting as directed.

It was further found at the Central Hospital, Litchfield, that 15.0% of the cases of venereal disease was contracted from prostitutes, while 76.0% of all cases were contracted from amateurs, namely girls from private homes or who had committed the act for love or charity and who did not understand how to take care of themselves.

.21% congenitals
.99% accidentals
2.95% doubtful infection
4.6% wife infection

The same rate has been reported from the other venereal hospitals. I think that by the time all statistics are reported, no one will dare question the value of early prophylactic treatment.

It is a question, however, by advocating early treatment, whether we will be guilty of encouraging promiscuous intercourse, but the latter has been going on for so many centuries that I do not think we will be guilty of any indiscreet act.

The method for early treatment carried out in the British Army is inunctions of calomel ointment (33%) before and after coitus with also the insertion of some of the ointment up the urethra by putting the end of the tube, which is pointed, in the meatus and instilling the drug. This is followed as soon as possible by micturating and reporting at once to one of the various Early Treatment Centers and having a good irrigation of 1-5,000 potassium permanganate.

I have visited various venereal hospitals, but the best arranged and best equipped of them all is located at Spike Island, Queenstown, Ireland. Col. H. C. Donald, R. A. M. C., supervised its arrangement and applied many original ideas to make the hospital as nearly perfect as possible. Through his kindness I will be allowed to briefly describe its treatment rooms.

The Syphilis Division had an examination room, which contained the microscope and dark-ground apparatus, tables, etc. Between this room and the "606" treatment room was a waiting room for the patients who were either waiting their turn for examination or treatment. The treatment room was washed every day with an antiseptic solution to prevent infection and the room was used for no other purpose. We had enough equipment to give six patients "606" and "914" treatment at one time. Off from a short passage we had our soft chancre and bubo treatment room with irrigation apparatus for both saline and bichloride of mercury used in the treatment of Balanitis and Phimosis. Leading from this was our operating room for circumcisions and any clean operations. Every room was washed daily with an antiseptic solution to guard against infection.

The Gonorrhoea Division had much the same arrangement. A real good feature of this division, however, was its irrigating room, which was equipped for the treatment of fifty gonorrhoeal patients at one time. The nozzles were sterilized in boiling water for 20 minutes before use and were issued to the patient as he presented himself for treatment, by the orderly in charge. The patient then irrigated himself, after which he washed the nozzle out and handed it back

to the orderly who put it into the sterilizer. A medical officer instructed each patient how to use the irrigation apparatus and from time to time ascertained whether the patient was doing it properly. The orderly in charge of this room had a list of the patients under treatment and checked his name after each irrigation. All cases failing to turn up were listed and this list was handed to the Ward Master who saw that the delinquent ones were rounded up. These irrigations were by syphon thereby doing away with the clips for shutting off the irrigating solution. Each patient was equipped with a rubber apron with a hole in the center large enough to slip over the penis; the patient stood over a long trough (two feet six inches high) which was lined with a non-corrosive metal and draining into the sewage.

With the treatment rooms equipped as the above and with a first class staff of orderlies it was possible to attain a very high standard of efficiency.

I think most of us realize that we must interest ourselves, as medical men, in the effort to improve the method of prophylactic treatment of venereal diseases in our cities. It comes in as a big factor in the reconstruction period which has followed the war. I was interested to see the big movement which was launched by the National Public Health Service, to install in cities of over 20,000 inhabitants suitable prophylactic and Venereal Centers, throughout the United States. I learned this through an article published in "Collier's Weekly" by Mark Sullivan entitled "America's Fight on Disease." Few realized before the war just how much venereal disease existed in our cities. Dr. R. C. Jamieson, in a letter to me while I was in England, written in the summer of 1917, said he had not realized before his work on the Drafting Board in Detroit, that there was so much disease among our young men. So all of us have learned much since April, 1917. Each one of us must do his part and may I say that education is the key-stone to success and members of the medical profession need teaching along venereal lines. I was very much surprised to see so much ignorance among the Irish medical men who were sent to me in Ireland for instruction in venereal diseases. And judging from some of the mistaken diagnosis of secondary syphilitic skin eruptions that were sent into the hospital shows that more medical men must know the A. B. C's of genito-urinary diseases. The British army, in view of future civilian work, sent all newly joined medical officers to the venereal hospitals for instruction and already success has been accomplished in many cities of the British Isles as the result of the instruction.

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SURGICAL TREATMENT OF SADDLE NOSE AND MALIGNANCIES*

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The discussion of a subject of considerable scope is attempted in the few minutes allotted to this paper. Consequently one must neither deal with historical resumes nor evolutions of technic, however interesting, but rather with procedures based on sound surgical principles producing results of definite known value. Questionable and obviously bad technic will be indicated frequently but not discussed.

Saddle nose is a term covering a large group of cases which are the cause of grave mental, and frequently, functional distress.

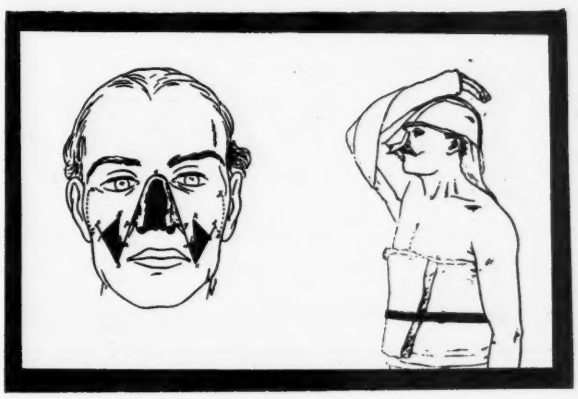

Fig. 1. French and Italian Methods.

whether the etiology be infective, traumatic, or specific. The deformity has but one meaning to the precocious lay mind—a meaning which has driven hundreds of tormented people to the beauty quack and hydro-carbon specialist and has produced numerous corrective surgical procedures in various parts of the world. Most of these surgical procedures have failed because their basic motive has been cosmetic improvement without consideration of the fac-

*Read at 56th Annual Meeting, Bay City, May, 1921.

tors underlying the deformity. It may be well to diverge at this point long enough to state that any nasal deformity, whether it be a saddle, a hump or one of the varied tip deformities, which is sufficiently marked to attract the undue attention of society demands the careful thought and the best ef-

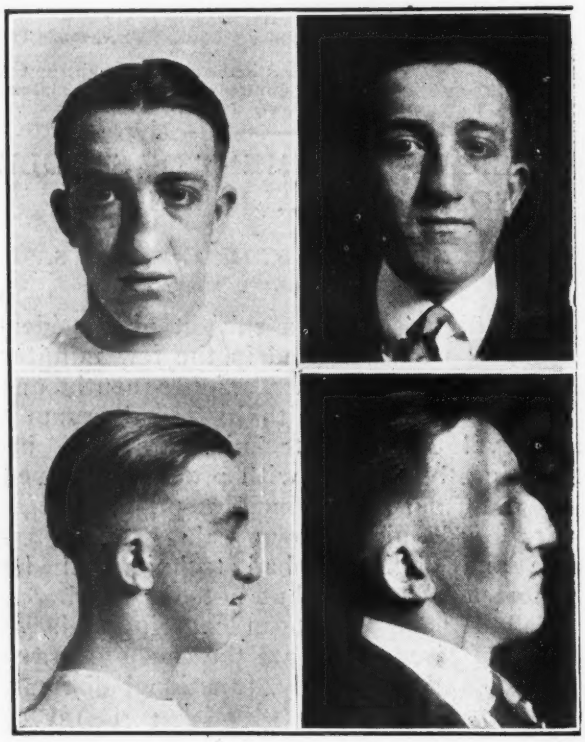

Fig. 2. Traumttic Saddle and Deviation.

fort of the surgeon. Such deformities frequently underlie grave psychic disturbances and unfit the individual for his function in life.

The treatment of these cases depends upon their etiology. The purpose of the treatment is restoration and this includes function as well as cosmetic appearance. In most cases, one is limited in the matter of function to the establishment of free air passages and the removal of contacts and resulting pathology.

A few general principles which govern restorative surgery in this neighborhood may be discussed before their application to types of cases is considered.

The patient's general physical condition should be fully appreciated. The nose should be carefully examined inside and out to determine the condition of the covering, supporting and lining tissues. Where large losses have occurred, it is wise to make a plaster mask of the part and related areas which may be used at one's desk in planning the repair. Having accurately estimated the loss in any of the three elements, one selects the proper tissue for repair and the method for transferring it.

Two general methods for securing covering and lining tissue are available.

A—The "French Method" consists of sliding or stretching of a flap with little twisting or torsion of its pedicle. Such flaps serve to mask a loss of substance but should never be used in large partial or total losses of the nose, because rapid flattening and deformity result. A lining of mucus membrane or skin must always be supplied when this flap is used in the repair of a cavity. (Fig 1.)

B—Interpolated flaps. Four types may be considered.

1. Flaps from the immediate neighborhood, either single or double, with a pedicle which is rotated, twisted, bridged, or tunneled. Such a flap from the forehead, i. e., the "Indian flap"—is the method of choice for nasal covering.

2. Flaps from a distance carried on Gillies tubed pedicle. Perthe's method outlining, dissecting and resuturing the flap in its original bed is usually combined with this procedure.*

Fig. 3. Traumatic Saddle.

3. Free flaps or grafts. These may be skin, fat, fascia, bone or cartilage.

4. Flaps transferred on a "carrier,"

*Ferris Smith—Journal of A. M. A., Dec. 4, 1920.

usually the arm. This is essentially the "Italian Method" of rhinoplasty. In the light of present knowledge, the method has nothing to recommend it in nasal or facial repair and many things to condemn it. (Fig 1.)

The source of material is selected with the idea of the amount required, its quality, proper blood supply, etc., clearly in mind.

One has now to consider the relative merits of supporting substances for the ridge, columella and alae.

A—Organic.

1. Periosteum had a brief popularity, but its use has been abandoned.

2. Bone from the ribs, tibia and pelvic crest enjoys a certain popularity in some sections. Free plants of bone, with or without its periosteum, into the soft tissues is slowly absorbed. Bone which is turned with a flap without separation of its periosteum but unattached to other functioning bone, is partly or wholly absorbed, leaving a dense scar which furnishes some support. The difficulty in shaping or handling bone under these conditions practically excludes it as a means of support.

3. Cartilage is the ideal supporting substance. It has no blood vessels and lives easily by lymph absorption with or without its perichondrium. The supply of rib cartilage is ample to meet any need, it is easily available and is readily modelled to meet any requirement.

4. A combination of cartilage united to bone is strongly urged by some workers on the ground that it most closely approximates original conditions and that the bony union obtained fixes the implant in its desired position. Such a piece is obtained at the costo-chondral junction in a rib. Theoretically, this makes an ideal implant but practically one must meet the objections already urged against bone and suffer the disappointment of frequently lost implants.

5. Fat. This should be planted in excess of requirement without pressure, in a single sheet, if possible, and lightly sutured to its bed. It is only of value in filling small depressions.

B. Inorganic Supports.

1. External Protheses serve a valuable function in furnishing temporary support for the repair of soft parts and, occasionally, may be left permanently for this purpose.

2. Internal Protheses. Years of experience with every variety of inorganic substance planted in soft parts have served to prove that only exceptionally is a foreign body kindly borne by the tissues. Gangrene, skin atrophy, or expulsion of the piece has been the usual experience. There are still enthusiastic supporters of hydrocarbon preparations and those who make strong claims for celluloid; but, after all is said, both are foreign bodies.

These principles may now be considered in their application to individual cases.

A. Traumatic Saddles.

These cases result from impacts of varying violence producing depressions and deviations with or without loss of substance. The fractured and displaced bone and cartilage serve a valuable function in repair. In those cases where no loss of substance has occurred and the saddle depends solely on displaced support, one may adopt either reconstruction methods or restoration. To reconstruct, the supporting parts may be mobilized by the use of saws, cutting and fracturing instruments through intranasal incisions after the methods of Carter, Joseph, etc. The septum is resected and

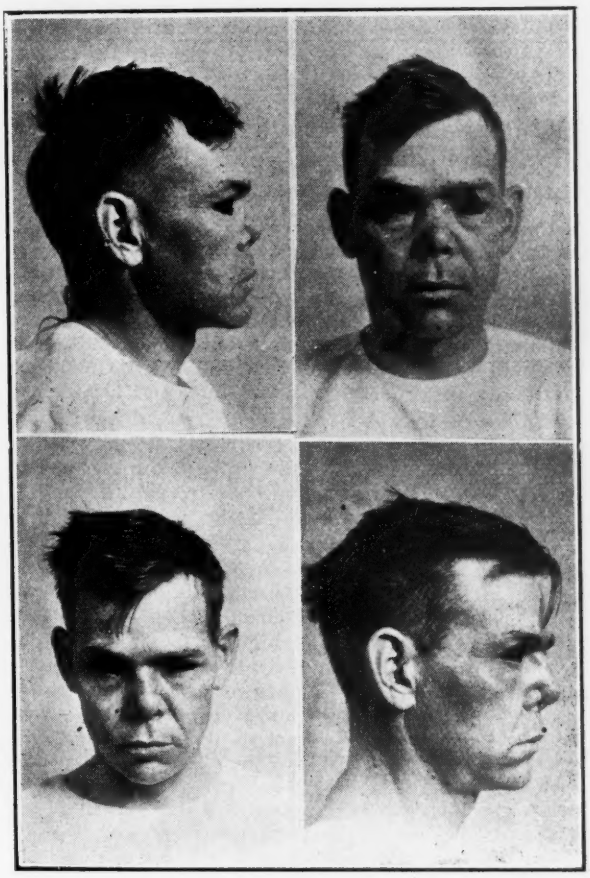

Fig. 4. Leutic Saddle.

the parts supported on proper splints.

To restore the cosmetic appearance and respiratory function, one first resects the septum and later plants properly prepared costal cartilage in the ridge, or columella or both. This should be acomplished through intranasal incisions whenever possible, but may be done through a quarter-inch glabel-

Fig. 5. Specific Saddle.

lar incision or through one made in the mesial end of the eyebrow. Every effort is made to avoid visible scars.

Case 1. (Fig 2.) Depressed and deflected ridge with intranasal occlusion following automobile accident. Submucus resection. Costal cartilage planted in the ridge and columella through intranasal incision. This implant has been made very thick in its middle portion to prevent bending by the pull of the elevated covering, with the intention of removing the "hump" after a number of weeks.

Case 2. (Fig 3.) Vehicle accident during youth. Submucus resection. Later implantation of costal cartilage in ridge and columella through intranasal incision. No visible scar.

Case 3. Saddle following gunshot wound. Removal of scar. Lining secured from border skin by use of hinged flaps. Covering supplied by Wolff grafts. Later insertion of costal cartilage in ridge.*

Case 4. Three-quarters of tip lost in accident during infancy. Incision from one lateral border to the other at the free margins of nasal processes and nasal bones. The lower segment has been dropped to the normal level of the tip and a columella fashioned from the remaining stump. Skin covering has been sutured to the lining. Stage two will consist in turning up a small skin flap for lining and covering the total defect with a small Wolff graft. This will produce a smooth, well balanced nose of pleasing appearance.

B. Infective Saddles.

The deformity in these cases always results from the loss of one or more of the nasal elements. If the loss is recent, restoration may be accomplished by the implantation of cartilage without fear of distortion by subsequent scar contraction.

Case 1. Saddle in young woman following a septal abscess during influenza infection. Repaired by cartilage in ridge five weeks following the cessation of suppuration.*

Cases of longer standing demand other treatment. This will be discussed in the following consideration of leutic saddles

C. Specific Saddles.

"Many procedures for the correction of this deformity have been practiced in all parts of the world. The failure to secure a pleasing result may be attributed to a lack of recognition of the loss producing the saddle and the effort to merely raise the skin with some supporting substance.

"The obvious loss producing the scar with its attendant contraction follows gummatous ulceration of the mucosa, bone and cartilage. This must be the first point of attack. The scar is freely excised, either through the nostrils or through an opening under the lip, the raw area skin grafted over

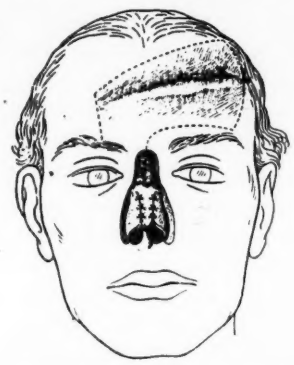

Fig. 6. Nelaton Method.

a supporting splint, which may be fastened to the teeth or wholly confined within the nose. After the skin is thoroughly organized in its new position, cartilage support may be placed either in the ridge or collumella or both."*

Case 1. (Fig 4.) Patient requested the "maximum result obtainable in 10 days hospital residence." Scar has not been removed. Repair effected by the use of a very heavy cartilage implant in the ridge supported on a similar columellar implant resting on the septal spine. Note that the ala is held to the free border of the nasal process by scar. The result of the proper method of treatment is shown in case 2.

Case 2. (Fig 5.) Saddle following submucus resection for correction of gummatous deformity. Loss of entire septum and columellar cartilage. Scar removed through opening beneath the lip. Skin grafted over splint. Costal cartilage in ridge and columella.*

Malignancies of the Nose.

"The distress, both mental and physical, occasioned by various malignancies of the nose is too frequently noted to merit discussion. The failure of local treatment of various sorts and of both the roentgen ray and radium in many of these cases in notorious. The knife is usually the last resort.

*Ferris Smith—Journal of A. M. A., Dec. 4. 1920.

*Ferris Smith—Journal of A. M. A., Dec. 4. 1920.

This entire cycle should be reversed. These patients should have preliminary exposure to Roetgen ray or radium, early operation and further exposure to the ray or radium."*

One has in mind particularly the squamous celled types which are little affected by radiation. The rule should also apply to the basal celled types, to the various sarcomas and to lupus, actinomycosis, etc., which do not show definite evidence of yielding to appropriate treatments. All too frequently these cases are referred in a hopeless condition or after much scarring with

Fig. 7. Sarcoma of Antrum and Face.

actual cautery, caustics or radiation has produced an impaired blood supply and rendered plastic repair extremely difficult.

Many of these cases require radical amputation and exenteration of nasal contents, followed by cooking heat and subsequent radiation before surgical repair can be attempted with any promise of success.'* These cases reuqire more or less total reconstruction and introduce several new points for consideration.

The best covering is obtaind from the forehead because of the quality, thickness and color of the skin. The flap should be cut acurately to the size of the defect and should include in its pedicle blood supply from either the supraorbital or temporal arteries. The forehead defect is closed by advancing the scalp, the return of the pedicle and the use of free grafts when necessary.

Several methods of placing the supporting substances have been practiced. Nelaton placed it in an acurately measured covering flap. This method is bad because the flap rarely shifts on its pedicle to bring the support in the median line and, at the same time, allow accurate treatment of the flap margins. (Fig 6.) The best method is that of Gillies, which consists in planting the support in the glabellar region and turning it down on a hinged lining flap. This insures accuracy and permits independent treatment of the covering tissue. I include with this a bit of cartilage for the columella, nourished by a tongue of skin which will form its lining surface. One may leave the implantation of support until the soft parts repair is complete.*

The following cases illustrate application of these various principles:

Case 1. Perforating rodent ulcer of the glabellar region, treated over a period of nine years with escharotic pastes, curettage and the roentgen ray. Perforation through nasal bone one-quarter inch in diameter. Skin ulcer the size of a dime. Skin area widely excised, right nasal bone removed and actual cautery used on borders. Repair in three stages. Lining from ulcer edges and covering from forehead.*

Case 2. Squamous celled carcinoma complicated by tertiary syphilis. Patient aged 65. Invasion of distal two-thirds of nose, septum, turbinates and center of lip. Free excision of nose, turbinates and portion of lip. Actual cautery and radium. Repair of lip and planting of cartilage constituted the second procedure. Lining secured by using hinged flap supporting the cartilage and similar flaps from each lateral border. Indian type of flap to cover. Return of pedicle and Wolff grafting of deficiency constituted the last stage.*

In aged people and those otherwise not fit for operation, I advise radical removal and the use of covering protheses.

Fig. 8. Osteoma of Superior Maxilla and Antrum.

The nasal accessory sinuses frequently are involved by malignant growths. The

*Ferris Smith—Journal of A. M. A., Dec. 4, 1920.

*Ferris Smith—Journal of A. M. A., Dec. 4, 1920.

same general principles of removal apply to these cases.

I wish to present two very interesting results.

Case 1. (Fig 7.) Mixed celled sarcoma in patient aged 60. Involvement of the entire right maxilla and overlying cheek. Partially reduced by Coley's serum. Radically exenterated with the cautery. Large doses of radium. Result at the end of 18 months.

Case 2. (Fig 8.) Osteoma of left antrum and maxilla in patient aged 25. First noted at the age of 5. Had progressed until alveolar border was

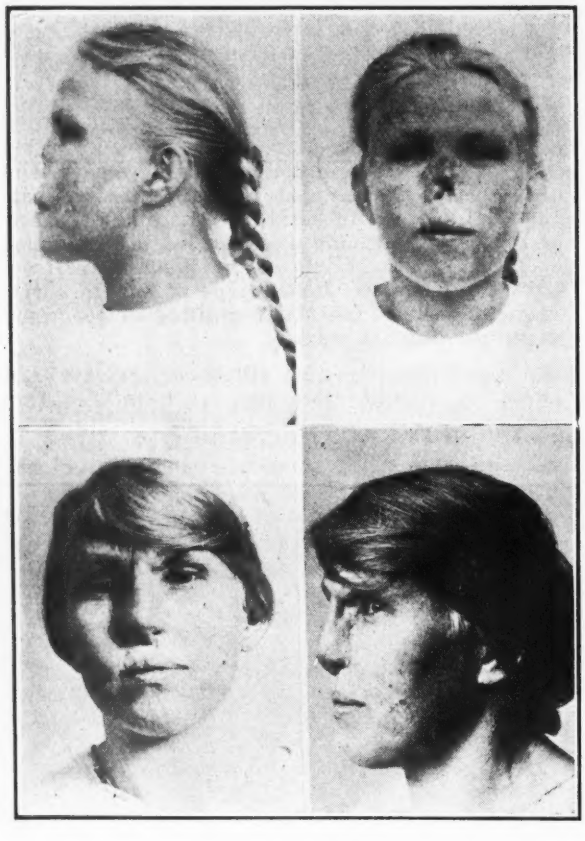

Fig. 9. Lupus.

one and one-half inches wide, dental articulation entirely destroyed, lachrymal duct occluded, etc. Removed from beneath the cheek.

In conclusion permit me to present three cases of lupus:

Case 1. Has had highly skilled treatment with light, roentgen ray and actual cautery without result. The case is presented in this stage to illustrate the radical handling in the effort to remove involved lymphatics as well as visible patholgy.

Case 2. (Fig 9.) Lupus of the face and nose which had been unsuccessfully treated by roentgen ray, chemical applications, etc., and was finally healed with Finsen light used by Dr. Jamison. The nasal repair followed the lines already indicated.

Case 3. (Fig 10.) Ulcerative lupus in a girl aged 25. First appeared and was healed by the use of X-Ray at the age of five. Minor recurrences since have been similarly treated. Eighteen months ago a recurrence was similarly treated and was followed by rapid ulceration and sloughing. The anterior antral wall was extensively involved.

At first operation, the involved area was radically removed and a pedicle tubed on the neck. At the second operation (present stage) a flap from the

Fig. 10. Lupus.

chest was planted on part of the area. The final stage will consist in spreading out this flap to cover the defect and release the scar pulling on the corner of the mouth. Return of the pedicle.
403-8 Metz Bldg.

DISCUSSION

DR. J. B. KENNEDY, Detroit: I do not know much about this subject though I was intensely interested in the paper read by Dr. Smith and the slides that were shown. I wish that more surgeons could see the slides and hear the paper. I congratulate not only Dr. Smith but the Society on having presented to it such an interesting paper.

DR. P. M. HICKEY, Detroit: I would like to ask Dr. Smith a question about the late treatment of cases of lupus. I had a case 17 years ago. At that time the lesion involved the nose, both cheeks and the mouth. We gave her radiation and succeeded in curing the lesion. Lately she appeared with very slight evidence of returning but complaining of the cicatrization which had taken place in the scar so that the mouth at the present time is puckered in which prevents her from taking any hygienic care of her teeth. They are in a very bad condition. I removed as much of the debris as I could through the small opening. The question came up in my mind as to just what could be done with that condition. There you have a double problem, the restoration of the nose and the restoration of the mouth. The question of the restoration of the nose would be carried along the line that Dr. Smith demonstrated. I would like to ask what procedures he would recommend for that terrible deformity of the mouth.

DR. L. C. DONNELLY, Detroit: I had a case of lupus that received one treatment with the high frequency lamp. I was advised to give rather heavy doses of the Finsen light. I gave the patient 10-minute doses with the chromium lamp. I want to say that in treating these cases of lupus with the chromium lamp one should be careful not to give an overdose. I only gave one-quarter of the dose, but I believe the lupus is still spreading.

DR. R. J. HUTCHINSON, Grand Rapids: I do not feel capable of discussing this paper but I have seen cases before and after operation. I personally feel as though I would like to throw up my hands if anyone came to me with that disfigurement. It is quite interesting to step into the operating room and see Dr. Smith fixing a piece of cartilage for the nose. Now you see and now you do not and the person who had a saddle nose before, now has a perfect nose.

I think the thing impressed on me by Dr. Smith is the necessity of supplying the proper lining for

the cavity; in fact, I think he gets results where those who do not pay attention to this point do not get them.

The use of radium, of course, I cannot say anything about.

DR. C. L. STRAITH, Detroit: I had the great pleasure of working with Dr. Smith on one of these cases—the girl with the lupus. It is certainly a pleasure to see the remarkable results obtained. The girl came back only a week ago and she has a beautiful result.

I wish to ask a question. For years we have been using the tibial graft or some solid bone graft in restoring the nostril. I wish to ask if it is not better in the present light of our knowledge to use a cartilaginous graft rather than a solid bony material. Secondly, in a number of cases we had some difficulty with infection when the bony or cartilaginous material was introduced through the nostril. I would like to ask whether it is not better to introduce it through an incision in the eye region.

DR. FERRIS SMITH, Grand Rapids, (closing): Regarding the case mentioned by Dr. Hickey, one might say that the mouth can be just as perfectly restored as the nose. This paper dealt just with the nose. It could be restored if the muscles about the mouth have not been ruined and the mouth could be given a very pleasing expression. A flap can be taken from the back or breast or some place in the neighborhood.

I rather hesitate to discuss the subject of lupus because I am not a dermatologist and I have not given a great deal of thought to the treatment side or the surgical side of lupus. As a rule these cases yield quite readily to radiation. The cases which do not yield to radiation should be treated surgically. In one of the clinics in Paris I saw these lupus cases treated by multiple incisions with very fine results. If the surgeon will take a sharp scalpel and mark the face much as you would the counting chamber on the blood-counting apparatus, he will get a very fine result. The ulcerative types are left for the surgeon. The sooner they are treated the better the end result. This case that was shown today, the young woman with the ulcerative lupus of the face, was treated by Dr. Hulst 20 years ago and it was treated again when she was 15 years old. This time she was treated with the so-called Finsen light, which stimulated the growth rather than healed it. Then she was sent for X-Ray treatment which hastened the breaking down.

In a general way one might say there is no deformity involving the soft parts of the face which cannot be repaired in a very good way and sometimes in an almost perfect manner.

Dr. Hutchinson has picked out the kernel of this whole thing when he speaks of the lining. The failure of the work in past years was due to the fact that the surgeon did not think of lining with the result that the flap contracted. That really is the first principle of the whole thing. Now as to the use of supporting substance, there is no question in my mind as to the choice between cartilage and bone. I made that quite clear in the paper. Dr. Carter, of New York, says that if you were putting in a bone graft in any other area of the body, you would do it under the most aseptic condition. If you were to put a graft into the humerus, tibia or ribs, you would see that the cavity was perfectly aseptic. You would not insert it through a cavity like the nose cavity, though there is no reason why the nose cavity would not be clean. I pack the cavity with iodine because one must have a clean cavity if he is going to transplant a piece of cartilage. One sometimes has to use a piece of bone for the columella.

Regarding the eye-glass incision, the whole purpose of plastic surgery is to improve the cosmetic appearance. Most of this work can be done with the introduction of scar.

DIPHTHERIA FOLLOWING OPERATION FOR TONSILS AND ADENOIDS*

CARL McCLELLAND, A. B., M. D.
DETROIT, MICH

The following case is reported on account of the difficulty in diagnosis, and to emphasize the fact that all cases of tonsillectomy should be carefully followed during convalescence for the possible complications.

T. O., girl, age 8, was referred to me for tonsillectomy and adenoidectomy, Oct. 31, 1919. Examination of the throat showed infected tonsils and adenoids. Arrangements made, she entered the hospital. It is a rule of the hospital that every case admitted to this ward must have a culture of the throat taken and reported negative for Klebbs Leffler. This culture was taken by the hospital laboratory on Oct. 31, 1919 and was reported as negative the following morning.

The tonsils and adenoids were removed Nov. 1, 1919 with ether enesthesia, using the sharp dissection method for the tonsils, time record of operation 10 minutes, with no bleeding and everything normal, The following day she was allowed to be taken home, and was carried by her father to and from the street car.

The usual instructions were given, namely, "keep patient in house for four or five days, permitting her to eat anything she can swallow, and bring her in for observation in one week." I advised the parents not to be alarmed over any white patches in the throat, explaining that this was present after all tonsil operations, and would gradually disappear as healing progressed.

Four days later, Nov. 6, I was called at midnight by the mother who stated that the patient was bleeding. On questioning her as to the general condition of the patient, she stated that the child had been fine for three days, was up and playing about and had a fairly good appetite. On the previous day the child did not eat as well as usual and was apparently nauseated. During the night she vomited blood stained mucus, and had been spitting blood for two or three hours. When asked if patient had bled a cupful, the mother said the bleeding had been slight. I advised ice chips for the tongue and ice collar for the throat and calling the following morning I found the bleeding slight, the patient apparently having bled from the nose, as the nasal passages were filled with bloody mucus, there being also considerable mucus in the throat.

The child seemed in good condition, was sitting up in bed, (seven days from the time of operation) spitting quite an amount of bloody mucus, her nose was very stuffy and Friday she began to have a croupy cough with some difficulty in breathing. The parents thought she had taken cold and waited until Saturday night, when, becoming alarmed, they, failing to reach me, called the family physician, who said that if the child had not just had a tonsillectomy he would think she had diphtheria, from the clinical signs present in the throat.

On Sunday morning examination showed a well advanced case of nasal and pharyngeal diphtheria, the abundant diphtheritic membrane covering the tonsillar fossa, anterior pillars, and extending well towards the uvula in the middle line. Her nose was filled with mucus, the larynx with membrane, so extensive that the child was unable to cry aloud. There was the typical laryngeal stridor. Without waiting for a culture, Dr. Binning gave 25,000 units of diphtheria antitoxin intravenously. We then took a culture which was of course positive Except for a heart complication, the child presently fully recovered.

On examining the throat five days after the operation the patient gagged more than usual. There was a rather excessive amount of mucus in the throat. There was the usual grayish white exudate in the tonsillar fossa. Bleeding had ceased, her temperature was 100, pulse 130. Incidently, as she had cried and vomited, I did not consider the signs as important but merely due to the excitement. Assuring the parents that the patient would be all right, and instructing them to use ice in case of bleeding and to call me if necessary, I left, satisfied there would be no more bleeding. Not hearing from them, I forgot the case in the stress of other work.

I did not hear of the case again for two days, the mother reported that following my visit Thursday, the bleeding promptly stopped but the child remained dull and restless, constantly nauseated and spitting stringy mucus.

In tracing the infection, we had a negative culture from the throat, on entering the hospital one week before, which, while it did not absolutely rule out the possibility of the diphtheria bacillus being pres-

*Read before Grace Hospital Clinical Society.

ent, at the time of operation, made it improbable. We then took culture of the parents and the two older brothers. They were negative with the exception of the oldest boy, his culture being positive with no clinical signs of diphtheria. He is classed as carrier, as he had played and read to his sister on her return from the hospital, he undoubtedly transmitted the infection to her.

Everyone, I dare say, has seen a throat following a tonsillectomy and has been struck by the similarity in appearance of the membrane to that of diphtheria. Its disposition may be the same, at least in the early stages, extending out on the anterior pillars and towards the middle line, to the uvula. It bleeds when pulled off, and is whiter probably in a tonsillectomy than in diphtheria. However, in diphtheria the membrane increases in amount and spreads rapidly, while in tonsillectomy it should gradually disappear, or at least remain stationery from one observation to another. The temperature is low in diphtheria, about 100 to 101 and this also is common in a child following tonsillectomy The pulse is rapid in diphtheria, but a rate of 120 to 130 in a child after examination, crying and gagging, does not necessarily suggest the possibility of diphtheritic infection. The diagnosis was made in this case by the increased amount of membrane in the throat and larynx, the obstructed breathing and general prostration. I am certain now, that the girl had diphtheria when I first saw her five days after the operation. Had culture been taken at that time an earlier diagnosis would have been possible.

Though this case has recovered, I am thoroughly convinced from this experience of the necessity of keeping our tonsil cases under more careful observation, thus avoiding the dangerous complications arising from any negligence on our part.

REPORT OF TWO CASES OF MUMPS BENEFITTED BY ULTRA VIOLET RAYS

LEO C. DONNELLY, M. D.
DETROIT, MICH

During my army service at Camp Wheeler I saw some 3,000 cases of mumps. At the Boston A. M. A. meeting last June I attended a Camp Wheeler reunion at the Harvard Club. Major Joseph A. Sailer was in charge of medicine during the height of the epidemic at Camp Wheeler. At Boston he made the remark that he learned one thing at Camp Wheeler from handling 3,000 cases of mumps. That one thing was that there was practically nothing to be done for mumps except general nursing. Mumps had to run their course.

On July 11, 1921, I was called to see Mr. N., age 29, single, an old patient. He had been out of work since November, 1920, had resumed work three days earlier and was suffering from an acute attack of mumps. Right parotid gland very swollen, tense, red, painful, jaws practically locked, left parotid becoming involved. Patient taken to the office, cheeks thoroughly rayed with Alpine Sun Lamp and Radio-Vitant lamps. At the end of half an hour jaws relaxed sufficiently to allow a Kromayer applicator to be placed in the mouth and the parotid glands were thoroughly rayed, using the Kromayer lamp. The patient felt good and slept well that night. On July 12, a second similar treatment was given. On the morning of July 23 he was well and returned to work. He lost one days work.

The second case was treated and was reported by Dr. F. J. Kern of Cleveland. His report follows:

"Frank B., age 17, was seen by me in the apartment adjoining my office. Both parotid glands were swollen and painful. Painful orchitis on left side. The patient had not eaten for 48 hours and could open his mouth only with difficulty. He was conducted to my office, put under the Alpine Sun Lamp; his cheeks rayed two minutes, distance foot and a half. The scrotum was rayed the same length of time. The patient got up from the couch smiling, his pain relieved, and he had his lunch the same evening. Next morning I found him sleeping, 10 hours of sound sleep. The temperature hovered around 101 degrees for the next few days, the patient had slight headache which was relieved by aspirin, but the severe pain never returned.

The reason for the apparently miraculous results are:

1. Ultra violet rays kill germs.
2. Ultra violet rays break down toxins.
3. Ultra violet rays open up lymph spaces, relieve congestion, and promote normal circulation.
4. Ultra violet rays relieve pain.

HIGH-POTENCY ANTITOXIN

The reticence which formerly characterized the attitude of certain physicians toward the injection of large doses of antitoxin in cases of diphtheria has almost entirely disappeared. This, in no small measure, is attributable to the enterprise of biological manufacturers in developing new and improved methods of antitoxin production.

The diphtheria antitoxin put out by Parke, Davis & Co. is remarkable for its concentration and purity. The total solids in this product have been reduced to a minimum, thereby practically eliminating the possibility of anaphylactic reactions. The high concentration of this antitoxin makes feasible the injection of an adequate number of antitoxic units in small bulk—a most desirable quality, since the pain and discomfort resulting from the injection are negligible, and, if given subcutaneously or intramuscularly, absorption is hastened.

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TO UTILIZE
IT FOR THE
EXPRESSION OF
YOUR VIEWS
ON
MEDICAL SUBJECTS

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OCTOBER, 1921

Editorials

CANCER WEEK

The reader will glean from the editorials and comments in this issue that there is to be conducted a nation-wide Cancer Week during October 30 to November 5. The end sought is that of education of the public. It is only by enlightening the public in a systematic manner and thus cause them to realize that with their cooperation the mortality of cancer will be reduced that we can impress them with the fact that delay is dangerous. Education of the public is the keynote of this campaign. We of the profession must undertake this educational work in every part of the state.

Dr. Peterson has been appointed as State Chairman and it is under his direction that the campaign will be conducted in Michigan. We urge that every sub-committee that he has appointed, bend their entire efforts to accomplish the results that such an educational movement will achieve. Further, we also urge that every member lend his support to this campaign and subscribe his wholehearted effort to make it successful. Make it a point that your patients are acquainted with the facts and also urge them to attend the meetings that will be devoted to this subject. This is an obligation that you dare not ignore.

STANDARDS OF GROWTH IN THE DETROIT PUBLIC SCHOOLS

Beginning January 1921, the height, weight, age, grade and nationality was secured for every child in membership in the elementary schools of Detroit. After discarding all ambiguous or faulty records, there remained the records for 43,477 boys and 40,912 girls, a total of 84,389. They concluded:

1—That retarded children are generally shorter and lighter than children in grade at age, while accelerated children are generally taller and heavier than children in grade at age.

2.—That nationality must be considered as an important factor in any final growth table.

3.—That boys grow faster than girls up to 10½ years.

4.—That girls grow faster than boys from 10½ years to approximately 15 years.

5.—That the history of the child regarding illness and physical defects must be given careful consideration in relation to its height and weight.

6.—That it is probable that a careful study of the height and weight of the parents might throw light upon the reason for the variations of the children.

7.—That the tremendous variation within an age group suggests that the height and weight are determined by a large number of factors other than age and sex so that interpretation must be based upon a series of laws rather than a single law.

8.—That study should be made at once of the physical defects of a sufficiently large number of children in each age group to determine the relationship each of these defects bear to the general health and progress of children in the public schools.

THE CANCER PROBLEM

As a result of the campaign which has been conducted by the American Society for the Control of Cancer for the education and enlightenment of the lay public on the subject of cancer, a greater and more accurate knowledge of this disease is already evident, and many fallacious ideas have been corrected. This has been the primary and

most necessary step in the campaign to reduce the very great, and often unnecessary, mortality of this disease, for until the patient of his own accord seeks medical advice no steps can, of course, be taken toward making a diagnosis or applying the proper treatment. Much yet remains to be done in the way of education of the public, not only in the more remote rural districts but in the towns and cities as well, and it must be done wisely and temperately, and without producing so great a fear of the disease as to alarm people unnecessarily. It is the knowledge that the disease can be cured by radical treatment in its earliest stages that must be disseminated. Many laymen, and some physicians, find it hard to believe this fact. Cancer is not a disease that runs its course, like pneumonia or typhoid; it is an actual entity—as much a part of the individual as his finger or his nose, and it is either still a part of him and growing to a fatal termination or it must be removed entirely in order that he may be cured. The layman knows of the many cases that are not cured, whether an attempt at cure by operation has been made or not, but he rarely knows of the cured cases, for the reason that the individual who has been relieved of the disease by operation goes about his or her business as well as ever, and disguises, so far as possible, the loss of the organ or the scar of the operation by which life has been saved. It is difficult to controvert this personal experience of the individual by assertions of the possibilities or probabilities of cure by operation, but it must be done if the public is to understand the actual facts of the cancer problem. Every physician should feel it his duty to make these facts clear to the laymen within his reach. The physician of the present day must do far more than care for the cases of disease that call for his help. He is the health officer of his own clientele, and they look to him for knowledge to protect them from disease. The instruction which has been given to the public is already bearing fruit, and from many communities comes the report that patients now present themselves to their physicians much earlier than in the past with symptoms that they consider suggestive of cancer. Under these circumstances it behooves us to consider, as members of the medical profession, the obligations which rest upon us as the nearest and the first sought source of scientific knowledge, to give to our patients that wise counsel which they have a right to expect.

Responsibility of Physicians

It is a well known fact that a considerable proportion of malignant tumors are not recognized by the doctor when the patient presents the indefinite early symptoms of the disease. Optimism too often replaces a careful physical examination. The great majority of cancers of the rectum are today treated as hemorrhoids for from one to six months. Uterine discharges are often not properly investigated, and curettings are not examined. Cancer of the tongue and mouth is permitted to advance because there is a positive Wassermann. Metastases are produced by repeated rough examinations. Malignant moles and epitheliomas of the skin are imperfectly removed. Clearly inoperable cases are operated on, thus bringing operation into disrepute.

These conditions call for a far keener appreciation of responsibility for the mortality from cancer than now generally exists in the medical profession. To collect and to make accessible to the physicians of this country the most fundamental and essential facts about cancer of the different organs and regions of the body is the object of this pamphlet.

Statistics

Complete returns of cancer mortality are available only for the registration area of the United States, which however, includes approximately 70 per cent of the total population. On the basis of this information it is conservatively estimated that the mortality from cancer in the entire continental United States at the present time (1918) is approximately 90,000 per annum. According to sex, the mortality by principal organs or parts affected, based on the figures for 1914, is as follows:

ESTIMATED ANNUAL MORTALITY FROM CANCER, CONTINENTAL UNITED STATES—1914-1915

Organs or Parts	Males	Females	Total
Buccal cavity	2,725	570	3,295
Stomach and liver	15,787	15,056	30,843
Peritoneum, intestines, rectum	4,544	6,027	10,571
Female generative organs	.....	11,965	11,965
Female breast	.....	7,771	7,771
Skin	1,982	1,098	3,080
Others	7,838	4,637	12,475
All forms	32,876	47,124	80,000

The recorded mortality from cancer in this, as in other countries of the world, is gradually on the increase. The annual increase in the cancer death rate is approximately 2½ per cent. The recorded cancer death rate has practically doubled during the last 40 years.

AN EDITOR'S DAY

The editing of a medical journal is not a bed of roses, neither is it one in which all

that is necessary is to sit down and roll off a few reams of editorial comment and copy. We feel fairly certain that the majority of our members have no conception of the details that are involved in the supervision of a publication such as our Journal. To impart a rather meager insight we are going to recite the incidents of a single day—it is but the narrative of practically every day in the month and the incidents recorded arise from day to day throughout the years.

Morning: Mail. This consists of about a dozen or more letters and several exchange journals. The first letter is from a county secretary requesting that we write to two local members who have failed to pay their current dues. The letters are dictated and the value of membership pointed out to the delinquent members. The next letter is from a member who has written a book and who expresses his indignation because its review does not appear. A letter is addressed to him informing him that the copy has been at the printers for two months but on account of printing, labor conditions, etc., as well as limited space the review has become side-tracked and that no studied insult to the member is intended. The next communication comes from a member who encloses a newspaper advertisement of a travelling advertising specialist with the request that we inform him how this man may be restrained from this class of practice. A letter is sent in reply advising him of the law governing these cases and at the same time the communication is sent with another letter to the Secretary of the State Board of Registration. The next is a postal card from a member complaining that he is not receiving The Journal. Upon investigation we find that he has moved from his former location and had not notified us of change of address. He is advised the reason why he did not receive The Journal and that in the future it will be sent to his new address. We cannot always intuitively know that a man has moved. The next is a letter from an advertiser asking why he is not receiving more business from his advertisement. We endeavor to answer his inquiry and point out to him that we are co-operating with him to our fullest capacity and urge that he continue to run his ad, as we are sure that satisfactory returns will result. Incidently we are interrupted by a telephone call from the printer asking for copy, instructions or for a check. The next is a letter from a member submitting copy for an original article that is in the nature of a small textbook. The manuscript is returned with suggestions that it be cut down. We make the suggestion as carefully as possible, but even then we know that we are going to be jumped upon because the paper is returned and we are going to be charged with favoritism. The next comes in the form of a call down because we printed the writer's discussion of a paper at the last annual meeting without submitting proof to him. This critic is unfamiliar with the rule that discussion of papers is not submitted because if we did we would receive a revision entirely different from what was said and what the stenographer reported.

We are interrupted by the bookkeeper, who submits a financial statement showing that the bank account is overdrawn and that outstanding accounts are due. A visit is made to the treasurer's office and a few bonds are put up to replenish the bank balance. Checks are drawn and sent to the Treasurer and Chairman of the Council for signature. The next letter is from a state secretary out west wanting to know the salary that is paid in this state to the secretary-editor, whether we have a medical defense and the annual membership dues. The information is supplied. Then comes a letter from a member asking us to jack up the profession on the subject of proper dosage of antitoxine in diphtheria. We thank him for the suggestion and promise to do so, at the same time inviting him to continue his interest in The Journal. The next is a bulky letter from the Secretary of the Illinois State Medical Society, inclosing a stenographic report of its president's protest against the Shephard-Towner Bill and urging that we file our protest with the senators and congressmen. Telegrams are consequently sent to these men in congress voicing our objections in behalf of the Michigan profession. The next is an invitation inviting us to attend the anniversary meeting of the Upper Peninsular Medical Society. Regretfully do we dictate our inability to be present and also write a letter to President Kay suggesting that he attend. The next communication is from the Chairman of a standing committee asking us to solicit funds from the county societies for the expense of his committee. This is referred to the Chairman of the financial committee of the Council, for instruction. The Secretary of the A. M. A. writes asking whether the enclosed list of men are still members of the state society. This letter is referred to the stenographer for proper notation opposite each name.

There follow a number of circulars from badge houses asking for the date of our next annual meeting, requests from directories asking for lists of officers, advertising agencies regarding ad copy and placement,

government circulars and similar one-cent mail. Incidently we have not mentioned returned proof from authors with individual requests as to style and reprints, monthly reports and remittances from country secretaries, communications from boards of health and a dozen different forms of circulars or requests. Interruption has been frequent because we have one or two patients who come in, for we do live from the income of our practice and not from our salary. The morning is gone and we dig out for lunch.

In the afternoon, the dictated letters are reread and signed. A few more letters are dictated requesting payment of reprints that authors have ordered. Incidently we write to prospective advertisers and seek to induce them to use our Journal. A long distance call comes in from a secretary asking us to supply him with an essayist for their meeting tomorrow night because the man scheduled has wired that he cannot come. We agree to substitute or send some one else. The printer's roll of proof and manuscript is checked over and sent out to the authors. A card from our associate editor stating that he has not received his check for the preceding month and was wondering if he is no longer connected with The Journal. Lack of funds is offered as the excuse and information is imparted that we have not drawn a check for our services for the past three months. The afternoon mail brings in a few more letters, and reports. One stating that a member is threatened with suit is forwarded to the Chairman of the Medico-Legal committee and the member is advised to govern his actions in the matter entirely by the advice given him by Dr. Tibbals. The rest of the mail is basketed until morning for it is now past office hours and we have a hospital round to make and dressings that must be done. As we leave we take with us a bundle of exchange journals, proof and manuscripts for our evening work at home.

Night: Dinner and the evening papers read and the boys aided in solving their problems, with possibly a trip to the movie or the entertainment of callers finds the clock recording the hour as 10 or 11. Out comes the roll and we run through the exchange journals, gleaning a thought here, and opinion there, or some scope of activity that is being carried on by sister state societies. At the same time we run through their advertising pages to see if they have any advertisers that we might secure for our state publication. The editorials are read and thus we secure material for our pages. The original articles are edited and incidently we wonder when authors will learn to double space their lines, refrain from use of capitals in the middle of sentences, cut out abbreviations and properly note quotations. These are but a few of the grievous sins of authors. Correction must be made before the manuscript is sent to the printer—often it is easier to re-write the copy and this is done quite frequently. By this time it is midnight. Out comes the old typewriter and with the pick system we endeavor to prepare our editorials and comments. At times the spirit moves with easy direction of words while again we pick out a line or two and then grope around for desired expressions and thoughts. One o'clock a yawn, bang goes the machine and we are off to bed. It is the end of just another day.

In re-reading the above we recognize we have but touched upon only a few of the details. They are many and vary from day to day but are all concerned with organization, journal and society work. We are not seeking for sympathy nor do we intend to impart how hard we work or the time that is consumed. Our desire is to just pull back the curtain and point out how and why we do sometimes make errors and to demonstrate that the position we hold is not void of physical and mental effort.

SUMMARY OF ORGANIZATION SUGGESTIONS AND ACTIVITIES TO BE CARRIED OUT, DURING THE NATIONAL CANCER WEEK

The exact date of this campaign, which will probably be held during the week of October 30 to November 5.

The following is a more detailed plan of what is desired to be undertaken during this national campaign. The main features, may however, be summarized as follows:

1. ORGANIZATION.

As it is desired to reach all parts of the country and as many of the population with the hopeful message of cancer control as possible, it is of course necessary to effect a complete organization, before anything else can be done. It is therefore recommended that the State Chairmen undertake to see that a Chairman of a Local Committee is appointed for every community of five thousand population or more in his state. The Chairman of these local committees should then select their local committees for the purpose of carrying out the following program.

2.—ACTIVITIES TO BE UNDERTAKEN

The aim in this campaign is, as stated

above, entirely educational, and designed to reach as many people as possible. The three main activities to be pursued may be briefly summarized as follows:

(1) LECTURES

A lecture bureau should be established and the lecturers instructed by use of the society's syllabus, as to how the subject should be presented. Lectures should include both those arranged for professional groups, such as medical societies, nursing organizations, etc., and those for the general public.

(2) LITERATURE

The society will provide a moderate quantity of literature to be distributed at meetings. As the amount avaialble for any state must at this time be apportioned in accordance with some arbitrary method, such as population or number of members in the society from that state, it is quite probable that it will be desirable for either the state committee or local committees to secure a modest sum for the purchase of additional printed matter. This can be secured at cost from the National Society, the little circular "Vital Facts About Cancer" recommended for the purpose being quoted at $20 per 5,000 or $35 per 10,000.

(3) PUBLICITY

This also falls naturally under two main headings, articles in professional journals and those in the lay press. It would probably be desirable to place the latter in the hands of a trained newspaper man, for all material should be carefully prepared and edited before it is given out. The news articles are simple, but abstracts or digests of the lectures given should be handled with extreme care. The editors of medical journals should be asked to co-operate by calling the campaign to the attention of their readers and asking for the co-operation of the profession. Editors of these journals will doubtless be willing to feature the educational campaign for the control of cancer in some number preceding the campaign.

Editorial Comments

Frequently circulars reach us from government offices advertising the fact that on a certain date a civil service examination will be conducted for the selection of a certain number of medical officers for service in some part of government work. Just now one lies before us seeking Roentgenologists. The requirements are the holding of the degree of doctor of medicine from a recognized school, experience and training in X-ray work and the passing of the civil service examination. The successful candidate will receive a salary of $2,500 per year, subsistence and one room. If his services are satisfactory at the end of three years he is entitled to the $200 bonus.

The thing that we marvel at is the salary that is paid. A man must put in six years of medical study, at least two years in X-ray study and for that time and the ability and skill that he has thus acquired he is rewarded with the sum of $2,500 per year. A freight brakeman with no education and two or three student trips will make that much a month and more, so also will men in other lines of commercial endeavor. It is easy to criticize public officers and services, but what else can be expected if the above inducements are offered to attract men to the service. Once in the service there is but little hope for advancement and eventually you are retired on two-thirds pay, provided in the meantime the convenience of the government has not brought about your dismissal.

According to newspaper articles prayer is not a very potent therapeutic agency for the cure of disease. A short time ago the press of the state gave considerable publicity to the cure of a boy in Hastings after he had been given up by physicians and it was alleged that prayer had entirely cured the boy. A little over a month later the same papers announced the boy's death. Thus are miracles performed and likewise are they discredited.

Welcome home is extended to a number of our members who have been so fortunate as to spend their vacations abroad. Many of us who have not been so fortunate as to be able to travel abroad will be very interested to hear of your summer's experience and observations. The Journal will welcome such articles either in the form of correspondence or original records of your trip. May we not have them for our next issue?

Have we forgotten so soon? The other day there passed down the street a funeral procession, the hearse was surrounded by a guard of ex-service men in uniform. The body inside was that of one of the boys who gave his all and whose body was being returned for burial in his home town. A military escort with the Flag preceded the procession. We watched this cortege for three or four blocks and in that distance but one man stood at attention with his hat off until the Flag and the hearse had passed. Have we forgotten so soon? Can you blame the boys for being sore?

Your comments on Government Regulation of two hours resuscitating work on drowned recovered within a reasonable period of immersion recalls the time old subject of Apparent Death From Death. It will be admitted that in observations at bedside we have not materially progressed beyond the great masters in medicine prior to the days of Pasteur, and it was during the life time of Pasteur that the French government established an international prize for differentiating Apparent Death From Death—under prevailing embalming methods Apparent Death has been "scrapped," but whenever it does occur, and it is known to occur both with and without consciousness, its ghastly tragedy is appalling!

In the southern German states the law demanded four days between death and interment, and I was personally told by an old minister that whilst a student at Munich, he was taken with typhus fever and died, but that he was fully conscious, laid out for burial and revived on fourth day when funeral rites were in progress. On January 17, 1878, 9:15 P. M., I declared an aged woman dead from consumption. She was left in bed and well covered. About 4 A. M. next morning her son called—house two blocks away—stating that a shudder passed over his mother's body. I found the body in position as I had left it, laid my hand over heart and began dozing, soon I felt a distinct spasm, we applied heat over the heart and soon the spasms became more frequent and accompanied by gasps of inhalations, by 6 o'clock she was breathing about six short breaths a minute. She recovered fully and lived about eight months. She had been fully unconscious. At that time nothing unknown was considered in having occurred worth reporting, acknowledgement of apparent death was common knowledge. But lately I was informed of a woman living in Wayne County who had received the last

rites of the Catholic Church and revived—prior to days of modern embalming.

The English Physiologist, Carpenter, devotes an entire chapter on Apparent Death From Death. Carpenter relates one case of which he had personal knowledge, that the body was revived after 12 hours under water. In 1877 I was informed by an English officer, who had been in India, that he was an officer of the guard, guarding the grave in which an Indian Fakir had been burned, after preparation for the trial buried and that the Fakir was revived, after grass had sprouted, thus I had the report of Carpenter verified. This officer knew nothing of Carpenter.

In one of the earliest annual publications of the Michigan State Board of Health, Second Volume, I believe, a memoir of Dr. Wheelan, contains report of a number of cases in which resuscitation took place after immersion of an hour and longer.

In the fall of 1919, a Southern California paper reported the case of a school teacher, who, while engaged in photographing the tides, was swept out to sea and found on shore eight hours afterwards swept in by the tides, after the proper authorities had used pulmotor and pronounced her dead, was resuscitated by an "irregular" after several hours of artificial respiration.

The evidence of existance of Apparent Death cannot be effaced by simple declarations that a heart once stopped for a somewhat longer period of time cannot be restored to function—in my personal case, the heart had stopped for upwards of eight hours and patient revived.

In comparing the older reports with those of recent time, it does seem that the pulmotor should be scrapped and resort to older methods, draining the lungs, applications of heat to heart, etc., and measures continued for a definite period until the physical signs of death beyond the cessation of heart and lungs are in evidence. The constitution of death should not be relegated as now to relatives and the undertaker—recognition of Apparent Death should be legally recognized by law, an officer of competent qualifications appointed for every supervisor's district, to whom every death should be reported and whose signature should be required before an embalmer could be called.

Comment:—We are very pleased to receive and give space to the above article from Dr. George. We are grateful for the information he imparts and the personal experiences that he records. This is the doctor's opinion and we accept it for when a man has seen such a happenstance one cannot deny that it occurred. Our comment in the last issue was based upon our own experience covering some 20 years during which time numerous instances occurred whereby measures of resuscitation ended in failure, even after they had been continued in some instances as long as 12 hours. It is upon that experience that we stated that where total cessation of heart action existed for 10 minutes and even less, measures to resuscitate invariably resulted in failure. We repeat the condition, total cessation of heart action. We are inclined to believe that reported cases of resuscitation after one, two, four or more hours that such cases on careful examination would have presented some cardiac action.

The doctor's suggestion regarding a state officer who shall be called and make an examination and certify to the death of every individual merits sincere consideration. It is a suggestion that appeals to us. What do you think about it?

The early detection of arterial disease is an accuracy that every thoughtful and alert physician is interested in. By our older methods early diagnosis is rarely or never possible except upon supposition or historical facts. Heretofore, we have been unable to institute early treatment because of failure to make a true diagnosis. Progress is being made. In the last issue of The Journal of Laboratory and Clinical Medicine, Harlow Brooks of New York directs attention to the method of Dr. David Dennis and of Dr. Reese, who have made some interesting observations and study of the conjunctival vessels and from their study are able to detect early arterial changes. Our readers' attention is called to this article because we feel that the employment of that method will go far toward assisting one in making an early diagnosis of arterial disease.

The Clinical Congress of Surgeous of North America will hold their annual session in Philadelphia the last of October. A splendid clinical program has been prepared.

Newspapers report the discovery of gold in certain coal mines. From the prices that are being quoted upon coal this fall, we formed the opinion that all coal must at least be gold plated. Evidently we are in error.

We are aware that many women object to a thorough examination. We, as physicians, often yield to this objection. In every uterine complaint in a woman past 35 insist upon a vaginal examination. It is only by such an examination that early malignancy can be detected. Such a procedure is the physician's duty in the campaign to reduce the mortality from cancer. The exhibition of a little tact and even time will enable you to cause the patient to withdraw her objection.

The test meal and gastric-analysis is only secondary in the diagnosis of gastric ulcer and early cancer of the pylorus and stomach. A barium meal and gastro-intestinal study is the more reliable. In all continued gastro-intestinal disturbances always insist upon such an examination. Do not procrastinate by giving diets and stomachics. These are all right after you have ruled out ulcer, which is the precancerous stage in the majority of cases of cancer of the stomach.

More persons died from cancer in the United States during the period we were at war than were killed in the army. And cancer causes one out of every ten deaths after the age of 40.

Cancer seems to be increasing in every country. Our death rate is 81.6 per 100,000.

The average delay by people afflicted with cancer is one year. That is, from the first symptoms one year elapses before a doctor is consulted.

Any sore that does not heal, particularly about the mouth, lips or tongue, is a danger signal. Avoidance of chronic irritation and removal of such seemingly insignificant danger spots may prevent cancer.

If you had spent $30,000 in doctors' fees during the past two years and ended up in New York, where you consulted a specialist, who requested a $250 consultation fee in advance and who, upon payment, sent you to a hospital, where you remained one week and paid a $50 hospital fee, if during that week your specialist saw you but three times, never examined you and never advised you as to

what your disability was or gave you a prognosis and remained away the last three days—if this had been your experience, would you be sore on the profession? If you had a boy, aged 16, who was ailing, and you went to a doctor and he told you if the boy was circumcised he would regain his health and you followed that advice and permitted the doctor to circumcise him and paid his bill of $100 for the circumcision and $15 for the anesthetic and 10 days later the boy's condition made it imperative to call counsel, with the result that a diagnosis of myocarditis with cardiac enlargement and broken compensation was made and the cause of the boy's illness, what would you think of the doctor who held you up for $115 for the circumcision? Would you be sore? These two experiences were related to us this past week. They indicate why the profession has bitter enemies. Is it not well to take warning?

The diagnosis of malignancy in every case of tumor of the mammary gland is comparatively easy if one will but make a careful examination, keeping in mind the diagnostic characteristics of cancer of the breast. Clothes removed and palpation and inspection plus the history will lessen the per cent of failure of early diagnosis.

In the education of the public regarding the high mortality from cancer you have a definite responsibility. Rise to that responsibility, not only during the week of October 30 to November 5, but through every week in the year.

Simpson of Washington draws the following conclusions, based upon his personal experience and the reports of the Rockefeller Institute: 1. I am positive that I can cause complete atrophy and disappearance of any but a fibrous tonsil in one to three treatments. If the tonsil is very fibrous, the change in size will not be so marked. 2. Eliminating as it does, any suffering, operation, anesthetic, hemorrhage and pain, it most certainly will be a popular method of removing the tonsils from patients who have circulatory or kidney lesions, who are unable to give their time for an operation or who prefer a slower, safer and painless destruction of the tonsil.

We have noted considerable discussion in regard to X-ray treatment of the tonsil and have read some of the reported results. We shall be very glad to receive the reports and discussions of our members upon this plan of treatment as against the surgical removal of the tonsil.

State News Notes

COLLECTIONS

Physicians Bills and Hospital Accounts collected anywhere in Michigan. H. C. VanAken, Lawyer, 309 Post Building, Battle Creek, Michigan. Reference any Bank in Battle Creek.

Lake View—Beautifully situated, one-third mile lake front, among century old trees. Boating, bathing, fishing. Large, handsome colonial mansion. Baths, steam heat, every city convenience. Orchard, vineyard, complete country estate of 18 acres adjoining village. Ideal location for physician, hospital or sanitarium. Nelson & Ocobock, Paw Paw, Michigan.

Practice for Sale—Excellent opportunity for surgeon or obstetrician with executive ability to obtain controlling interest in small up-to-date hospital in Detroit. Will also consider partnership. Call Cherry 3334. Mr. Glicman, 614 Free Press Bldg., Detroit, Mich.

Do You Want
an EXCELLENT LOCATION FOR GENERAL PRACTICE and a good REAL ESTATE INVESTMENT in Detroit?
Here It Is!

An attractive brick-veneer three-family flat, with basement, offices, on a prominent east-side street. Office suite consists of five rooms, arranged for doctor and dentist, or two doctors, with steam heat, compressed air, lavatory, etc.

The owner's apartment on the first floor consists of eight large rooms and bathroom, with fireplace, built-in book cases, china closet and refrigerator, and plenty of closets and cupboards to satisfy any wife.

The second floor has two as attractive flats of five rooms and bath as you have ever seen.

All built as you would build it yourself.

Can introduce to a large acquaintance. Terms. Address Doctor, 513 David Whitney Bldg., Detroit.

James M. Campbell, son of Dr. and Mrs. Christopher Campbell of Detroit, was married September 22 to Miss Marion Dwyer Crowley, also of Detroit.

Dr. F. L. Newman of Detroit met with an accident the latter part of August, while on a camping trip, and sustained a fractured leg.

Colonel Gilbert E. Seaman of Milwaukee was elected president of the Veterans of the 32nd Division (Red Arrow) at their annual convention, held in Detroit August 30. Dr. Seaman graduated from the Michigan College of Medicine and Surgery in 1889.

The Detroit Receiving Hospital, Psychopathic Division, began a series of ward walks on mental diseases September 25 (10:30 a. m. to 12 m.). These will be given every Sunday morning for six weeks. The work will amount to a post-graduate course in the subjects and will be conducted by the staff of the division. There will be no fee.

The following physicians are members of the Aviation Country Club, which is located in the lake region of Oakland County: Doctors E. K. Cullen, W. A. Defnet, H. A. Haggerty, R. J. McClellan, J. A. MacMillan, E. P. Newton, T. H. O'Rourke, N. B. Webber, R. A. C. Wollenberg (all of Detroit), and S. E. Galbraith and E. V. Howlette of Pontiac.

Dr. and Mrs. F. J. Maguire of Detroit spent their summer holidays at Mackinac Island.

The engagement of Miss Edna Lee Caulkins of Chattanooga, Tenn., to Dr. A. Lange of Detroit was announced the last part of August.

Dr. John A. Maloney, Detroit College of Medicine, 1920, has located in Flint.

Dr. J. T. Connell, formerly of Ann Arbor, has located in Flint.

Dr. R. A. Stephenson has been appointed school physician of Flint.

The residence of Dr. H. B. Osborn of Kalamazoo has been recently purchased by the Bronson Metho-

dist Hospital Association and will be used for the present at least as a nurses' home.

We are glad to state that Dr. and Mrs. F. N. Blanchard's daughter, Alice, is alive and well and not dead, as stated in one of the news items in the September issue of this journal. Our source of information was entirely incorrect.

The Detroit College of Medicine and Surgery has secured the services of T. L. Patterson, Ph. D. (University of College), as Professor and Director of the Department of Physiology. Dr. Patterson has for some years been a member of the Professional Staff of the Iowa State University and has contributed largely to the original work in his subject.

The Detroit College of Medicine and Surgery has secured the services of Dr. Donald Beaver, lately of the Pathological Department of the University of Minnesota, as Assistant Professor of Pathology.

Dr. R. Ernest K. Cullen has been appointed Professor and Director of the Department of Gynecology in the Detroit College of Medicine and Surgery.

Doctors P. M. Hickey, W. E. Keane, F. W. Robbins, B. R. Shurly, A. P. Biddle, F. B. Walker, R. W. Gilman, Delos Parker, A. W. Ives and C. G. Jennings were pallbearers at the funeral of Dr. T. A. McGraw of Detroit, held September 8.

A recent estimate of the economic loss to Detroit from tuberculosis during 1920 is $3,036,467.50. This estimate is based on the minimum economic value of a life as $1,700. Counting the 1,013 deaths from tuberculosis in Detroit last year, this would bring the total of $1,722,100. Adding to this, loss in wages at a minimum of $3 a day for 250 days, the total would be $759,750. Adding further the cost of necessary medicine and medical attention at a minimum rate of $1.50 per day, the total is $554,607.50. A grand total is secured without counting funerals of $3,036,467.50.

The Board of Trustees of the Detroit Tuberculosis Society voted in June to prepare a health exhibit to be used in Detroit and Wayne County. Paul Honore is preparing 11 paintings featuring health. Three will emphasize the development of resistance in order to resist disease. Children's health work in the schools will be the subject covered by two more. Three will be devoted to sanatorium and home treatment of tuberculosis. Rest is emphasized as an essential feature in the cure of tuberculosis in another. The necessity for a carefully regulated life after an arrest of tuberculosis is stressed in one. A painting on sanitary working conditions in factories is included. Other matter will be exhibited, showing the work that is being done by the Society and what the tuberculosis problem in Detroit and Wayne County is. A nurse with social training will give talks to those visiting the exhibit.

On August 29 the State Administrative Board gave to the State Department of Health complete authority over the health divisions of all state institutions. This action was taken because there has been considerable conflict between the various commissions administrating state institutions and the State Department of Health. According to the orders of the State Administration Board all appointments, salary raises and schedules of duty will have to be approved by the State Commissioner of Health, Dr. R. M. Olin, who will act in a supervisory capacity over the institutional physicians.

The Graduate School of the University of Minnesota has announced a special one-year course in ophthalmology and otolaryngology. This course began September 28.

It is reported that Western Reserve University has received $500,000 from Samuel Mather to be used in the construction of a new medical college building.

Dr. and Mrs. J. R. Rogers of Grand Rapids returned home the last week in September after a three months tour in Europe.

Dr. and Mrs. W. T. Dodge of Big Rapids have returned from a two weeks trip on the Great Lakes.

Dr. F. C. Warnshuis of Grand Rapids has declined to continue as surgeon for the Pere Marquette Railroad. His relationship is severed because of his unwillingness to sign a contract that called for remuneration at a fixed yearly salary of a figure that demanded his services at a rate of 50 per cent discount of the present accepted standard of fees. We are not disposed to serve corporations at reduced rates.

Dr. Paul G. Woolley, formerly Professor of Pathology in the University of Cincinnati and Pathologist to the Herman Kiefer Hospital, Detroit, has been appointed Associate Professor of Pathology in the Detroit College of Medicine and Surgery.

Dr. F. A. Roberts of Flint has been appointed Deputy Instructor General of the Michigan Grand Commandery, Knights Templar. Dr. Roberts will have supervision over the work of the Commanderies at Saginaw, Bay City, Romeo, Fenton, Mt. Clemens, Bad Axe, Port Huron, Lexington and Flint.

The State Administrative Board authorized, September 13, the creation of a new bureau of the State Department of Health, to have complete supervision over the medical, dental and sanitary work of the State Penal and Corrective Institutions. Dr. R. A. McGregor, prison physician at Jackson, will head this new bureau. He will also have advisory charge of the medical, dental and sanitary work in the State Hospitals and other State Institutions and will submit reports to the Administrative Board.

Dr. M. W. Wells, for two years Superintendent of Blodgett Hospital, has tendered his resignation, effective October 1. Dr. Wells will resume practice in association with Dr. Northrup.

Dr. B. R. Corbus and bride returned to Grand Rapids the first week in September after a month's honeymoon spent in the east.

Doctors Eggelston and Pritchard of the Battle Creek Sanitarium enhanced their golfing skill on the Highlands links at Grand Rapids September 21.

Butterworth Hospital, Grand Rapids, is reorganizing its Out Patient Department.

County Society News

GENESEE COUNTY

The Genesee County Medical Society met for noon luncheon at the Hotel Dresden on Wednesday, September 7, President Orr presiding. Dr. J. S. Pritchard of Battle Creek spoke on "Non-Tuberculous Lesions of the Chest." He showed about 40 lantern slides illustrating the cases presented. These cases included Hodgkins Disease, Malignancy of the Lung, Aneurysm and other Cardiac cases, Sequelae of Pneumonic Infections, Syphilis, foreign bodies. pleural calcification, Pneumothorax, Empyema and Hemothorax. Dr. Pritchard is a very clear and forceful speaker and his address was most enjoyable.

W. H. MARSHALL,
Secretary.

Correspondence

September 15, 1921.

Dr. F. C. Warnshuis,
Michigan State Medical Society,
Grand Rapids, Mich.

My Dear Dr. Warnshuis—Your letter of August 29 has just reached me, as I have been away upon my vacation.

I am very much obliged to you for bringing to my attention criticisms which were apparently going about the state concerning the University. I note that you say that it is being said, "that professors and clinical men connected with the University and Hospital were receiving a percentage or a commission on each operation or case that they attend, in addition to their salary." It is not easy for me to see how such a ridiculous rumor originated. Let me say categorically that there is no member of the staff of the Medical School or Hospital who receives or ever has received any percentage or commission for any operation or other service connected with the care of patients, or in any other connection.

Each member of the staff of the Hospital receives a salary determined by the Board of Regents, and this is in no way influenced by any work which he may do for the University. Moreover, a casual examination of the salaries will show that they are far below what these gentlemen would earn if they devoted their time to private practice, and that they are, in fact, holding their present positions at very great sacrifice.

I would be glad if you would publish this letter in The Journal, in order that no further doubt may exist in regard to the conditions of salaries or compensations in the University Medical School.

With best regards, I am

Yours sincerely,
HUGH CABOT,
Dean.

September 17, 1921.

Secretary,
Michigan State Medical Society,
Grand Rapids, Mich.

Dear Dr. Warnshuis—The Educational Committee of the Michigan State Tuberculosis Society has planned to put on an Educational Campaign during the month of October, beginning the 9th, with a universal Tuberculosis Sunday. The following week will be given over to Education, which we wish to make very intensive.

We wish through your Journal to ask the cooperation of all physicians in Michigan in endeavoring to put this campaign on and in assisting in every way to bring the message before the people.

COMMITTEE ON EDUCATION,
Otto L. Ricker, M. D.,
Chairman.

Deaths

Doctor John J. Marker of Eloise was born in Wayne in 1862 and was killed by a Michigan Central train September 2, 1921, when his automobile stalled on the tracks.

Dr. Marker received his medical degree from the University of Michigan in 1890. He became First Assistant Medical Superintendent and later Superintendent of the Wayne County Hospital at Eloise.

The doctor was a member of the Wayne County Medical Society, the Michigan State Medical Society, the American Medical Association, Michigan Sovereign Consistory and Mystic Shrine. He was an enthusiastic sportsman and greatly beloved by his many friends.

He is survived by a son, Morrison Marker; a daughter, Mrs. Donald Kiskadden, a mother, and two married sisters.

Doctor T. A. McGraw was born in Detroit November 4, 1839, and died in the same city September 6, 1921. After graduating from the Detroit Public Schools, he attended the University of Michigan, from which he received an A. B. in 1859. In 1863 he graduated with a M. D. degree from the College of Physicians and Surgeons in New York. After receiving his medical degree, Dr. McGraw enlisted in the Federal Army and served through the remainder of the Civil War, being brevetted Captain in the Medical Department.

He was one of the founders of the Detroit Medical College in 1868 and served as Professor Surgery till 1914. When this school was incorporated as the Detroit College of Medicine, Dr. McGraw was chosen President of the Faculty. He retired from practice and resigned his Professorship and Presidency of this school in 1914.

The invention of the McGraw ligature and several other surgical methods are among Dr. McGraw's contributions to surgery. In recognition of his services to the profession, the University of Michigan conferred an honorary degree of LL. D. upon him in 1906. The doctor was a member of the Wayne County Medical Society, Michigan State Medical Society, American Medical Association, American Surgical Association, Loyal Legion, Detroit Board of Commerce, Detroit Club and the Country Club.

He was married July 10, 1886, to Miss Alice Simpson of New York City, soon after his discharge from the army. He is survived by one son, Dr. T. A. McGraw, Jr., and by one daughter, Mrs. C. A. Lightner.

Dr. McGraw was President of the Michigan State Medical Society in 1887 and was one of its founders in 1866. He was also an ex-President of the American Surgical Association.

Book Reviews

DISEASES OF THE DIGESTIVE ORGANS—DIAGNOSIS AND TREATMENT. Charles D. Aaron. Third edition, revised, enlarged. Cloth, 862 pages, 164 illustrations. Price $10. Lee and Febiger, Philadelphia and New York, publishers.

A book that has reached a third edition requires no introduction. It has gone through the ordeal of criticism and has entered the permanent biblio-

graphy of medicine. The third edition of Aaron's Diseases of the Digestive Organs has been considerably enlarged and has been brought up to date. It follows the physiologic path of the digestive tract, beginning with diseases of the mouth and taking up in succession the pharynx, esophagus, stomach, liver, gall, bladder, bile ducts, pancreas, small intestine, vermiform appendix, cecum, colon, sigmoid flexure, rectum and anus. It deals less in theory than in the latest practical methods of diagnosis and treatment. Not one of the least outstanding merits of the work is its clarity and system and the ease with which desired information can be obctained by means of it. Among other evidences of the up-to-dateness of the work, the latest method for the removal of the duodenal contents and the non-surgical drainage of the gall bladder are given full presentation and are illustrated by instructive color plates. The non-surgical treatment of hemorrhoids is also fully described, with accompanying illustrative detail. We bid the book a hearty welcome. It ought to be in the hands of every twentieth century practitioner.

TREATMENT OF ACUTE INFECTIOUS DISEASES. Frank Sherman Meara, M. D., Ph. D., Professor of Clinical Medicine, Cornell University. Second edition, cloth 806 pages. The McMillan Company, New York.

It is refreshing, indeed, to have a book devoted to therapeutics and the treatment of diseased conditions come to a reviewer's desk. On several occasions we have commented that the profession as a whole is not giving sufficient thought to intelligent therapy tnd that the spirit of empiric prescribing predominates to our detriment.

In this work the author takes up individual diseases in a thoroughly practical manner explaining each detail of procedure so that the student and reader mty actually apply the principles set forth. Definite information is given in regard to physical therapy and the use of drugs.

In our opinion this is the most valuable text upon the treatment of infectious diseases that has come to our desk within the past three years. It is a text that we should like to see in the htnds of every active, practicing physician because if the reader will but follow the therapy that is discussed in this book in the treatment of diseases that are covered, there will be a startling improvement in the therapeutic processes of this man. We most sincerely tnd heartily commend this publication.

TO PHYSICIANS OF MICHIGAN

The vigorous campaign, which has been carried on in Michigan for the past three years, for the control of Venereal Disease will result in untold benefits to the coming generations, as well as relieving much of the misery and suffering in the present.

The number of cases reported so far this year is shown below:

VENEREAL DISEASE REPORTS
Jan. 1 to Sept. 1, 1921.

Gonorrhea	5,595	1,090	6,685
Syphilis	2,943	2,239	5,182
Chancroid	99	9	108
Total	8,637	3,338	11,975

In accordance with the new law, physicians are no longer required to give the name and address of patients on C. V. D. prescriptions and this change has been welcomed by most physicians, particularly in cases of tertiary syphilis.

There is enclosed herewith a new circular on the diagnosis of gonorrhea in the female to which your attention is invited.

The Department is glad to have your correspondence relative to any medical or social problems in connection with venereal disease or any other communicable disease.

Prompt reporting of cases is the first essential in the control of any communicable disease.

Thank you.

Cordially,
MICHIGAN DEPARTMENT OF HEALTH
R. M. OLIN, M. D., Commissioner.
W. J. V. DEACON, M. D., Director,
Bureau of Communicable Disease.
A. A. SURGEON, U. S. Public Health Service.

ANNUAL MEETING OF THE FELLOWS OF THE AMERICAN COLLEGE OF SURGEONS OFFICIAL NOTICE

In accordance with Article 111 of Section 2 of the By-Laws, the annual meeting of the Fellows of the College is called for 3 o'clock on the afternoon of October 27 in the Ball Room of the Bellevue-Statford, Philadelphia. The annual election of members of the Board of Governors will occur at that time.

Each Fellow of the College is respectfully requested to be present.

FRANKLIN H. MARTIN
General Secretary.

GOOD ROADS AND BETTER BABIES

Michigan and most of the other states have a big rural population throughout which babies are being born every day, and while it may seem a long way from good roads to better babies, the two are quite closely connected. It makes little difference and is of little advantage as far as the individual case is concerned if the city or town physician is a wizard at treating diphtheria, if long before he can arrive at the farm home the little child's throat has been closed by the disease, or the little heart stopped by the depressant poison. Consequently the necessity for good roads.

Of what use is the hospital at the county seat if the woman whose life depends upon immediate care cannot be taken there swiftly and comfortably because of the bad roads. Another reason for good roads throughout the country. If the farms are made accessible to the physicians and nurses and the hospital and the health center made accessible to the farm, nature and skill will do the rest. While the medical and surgical honors are generally claimed for the city, the country doctor is often possessed of a skill as complete as his heart is big, but he needs the aid of good roads to aid his skill in ministering to the community.

The babies and their mothers in the rural districts need care, the visit of the nurse, the services of the physician, often of the surgeon, and how are they to have it quickly if between them lie miles of road almost impassable to both automobile and buggy? Through good roads the family on the farm is made more accessible to the physician, nurse and hospital, and the danger in travel is materially reduced.—The Flint Daily Journal.